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Editorial Notes

THE word ' propaganda ' is in bad odour today because methods of propaganda have been adopted that are not only indefensible in themselves but also ineffective for the achievement of the desired results. Scientific facts have been perverted for purely political purposes. With such crude and dishonest efforts archaeology can have no dealings.

But there are other methods that can produce results of the utmost value. Essentially such methods consist of supplying a demand, of giving the ' victim ' something he wants rather than of trying to force on him something he doesn't. Applied to archaeology the first of these two methods may be explained as follows, where two countries, A and B, are concerned. A is a country whose archaeologists have organized an expedition to conduct excavations in B. Formerly such expeditions were little better than looting-raids on behalf of museums and collectors. They robbed tombs, took only the showy stuff, kept no records and published no report. Nowadays the keynote is co-operation with the people of the ' invaded ' country. Now that the goodwill of Near Eastern countries is desired for political reasons, there is an opportunity to obtain it by these cooperative undertakings, which can ultimately achieve far more than the old-fashioned and rather short-sighted methods formerly adopted. We have in the British Council an organization which can employ this powerful weapon, and it is good news that use may be made of it. We take the opportunity of calling the attention of the British Council to the further possibilities latent in archaeological work conducted on these lines.

It should, however, be recognized that archaeology is now no longer merely a hobby but a branch of science with techniques of its own, and that the pursuit of archaeology requires study and training ; it has become a skilled profession. (There is of course plenty of room still for the amateur ; but he would be the first to admit that he now looks to the professional for guidance, and cannot profitably work alone). Chief of these techniques is excavation. These facts, generally recognized in other countries—in Scandinavia and America for instance —are still ignored in some influential quarters in our own country. That is unfortunate, for archaeology can be used to create good relations between us and the peoples of other countries.

We are not indulging in a merely theoretical discussion. It would be possible to be much more explicit, but that might defeat our object. Out of many possible instances let us take that of a certain country in the Near East which was anxious to explore its own past by modern methods. The national institute invited the authorities of another and more advanced country to send them trained archaeologists who would carry out the excavation of an important ancient site. Expenses were shared and the work was successfully carried out. Good relations were thus established, and not only between the archaeologists concerned ; for the organization necessary for such an undertaking involves contacts of many kinds, not least of all because the actual digging is usually done in some rather inaccessible spot where the closest contacts with farmers, peasants and others are inevitable.

But such an expedition always has indirect results as well. The students of the ' invaded ' country go to the institute or university of the other to take courses of instruction ; they learn the language and get to know the people and their ways. On their return home they spread that knowledge ; and for the rest of their lives they look to that country as their ' spiritual home '. Some of them rise to high positions, in one case (which we have had in mind throughout) one of those former archaeological students is now Prime Minister. At a time when his goodwill is courted by rival countries it is natural that it should be inclined to the one which helped and encouraged him in his earlier days.

There is every reason for our own country to adopt a similar policy and for it to have equally favourable results. Our people are always welcomed in other countries when they go there on a holiday or for purposes of archaeological study. The desire for collaboration is present on both sides, but the Englishman too often fails to obtain the necessary support at home. It is difficult and embarrassing to have to explain this official indifference, caused by the rather narrow and old-fashioned view of culture hitherto held here.

This is not the place to go into details or to suggest actual programmes; but such could easily be composed. Several are indeed present to mind in the writing of these Notes. One warning note, however, must be sounded; the policy here outlined is a long range policy. It will produce certain immediate results, but that is not its main purpose. It is a policy designed to forge cultural links that will withstand a long strain. It produces a mental attitude that may be decisive at critical moments. It creates an economic goodwill (in the business sense) that has far-reaching practical results. And why does it do this? Because its agents, the archaeologists and their associates are not mere propagandists with a specious and suspect mission; they are simply scientists or technicians carrying out a task. They are supplying a demand, giving not taking; and they are in no way compromising their integrity by this procedure. They are helping to develop the national culture, not trying to force a foreign one upon their hosts. Foundations of goodwill thus laid will in time support a lasting building; the other policy produces only shoddy structures of an ephemeral kind.

But it must be realized that such a policy demands full recognition of archaeology in the 'exporting' country. It is not possible to export if you do not create factories and train experts to make the goods. It is not possible to send out archaeologists to excavate if you do not encourage them at home. Pupils from other countries cannot be trained here if the necessary organization does not exist. We do our best upon the existing voluntary basis, but we are hampered and frustrated. Our case is excellent, but that is not enough; we must convince the jury. We must explain our work to the public; when we excavate we must invite people to come and visit the excavations and explain to

them what we are trying to do in language they can understand. We must answer their questions, not tell them about types of pottery. ANTIQUITY has tried for years to do this, not without success. But whatever else may be uncertain it is clear that in the years to come archaeology will have to depend more, not less, upon state support, for voluntary sources will be more restricted. The actual amount required is infinitesimal, but it can produce practical as well as purely scientific results.

Quite apart from the particular case in point, it is incumbent upon us archaeologists to make contact with the general public, and by this is meant every one who is not a professional archaeologist. We must not expect government help unless we are backed by public opinion; and we shall not retain this backing (which we have already to a large extent) unless we make an effort ourselves. There are hundreds of people in this country willing to help us if we will only make it easy or possible for them to do so. Many of us do try and some succeed. But not all. One of our readers, writing to congratulate us on the special Sutton Hoo number, which he describes as the most satisfactory account he has ever read of an archaeological subject, continues: 'I do not know why it is, but most archaeologists write as if they thoroughly despise all the rest of mankind; they might as well write in a dead language! One doubts whether they all understand each other; perhaps they possess a glossary, kept secret in manuscript'.

Perhaps our correspondent does not make due allowance for the necessity of technical terms in any special subject; after all the columns devoted to sport, finance and motoring in the press are not always intelligible to the layman. But it is still true that archaeological articles are often written in a style that even experts find difficult to follow. Some of this obscurity would be clarified if the writer had always present in his mind the necessity of being understood by an intelligent non-archaeological reader. And today the necessity to do so is great. For in the future professional archaeologists will depend more and more for their support upon the intelligent members of the public, including those who control government funds; and mere common sense indicates the path to be followed.

New World Origins

by J. Grahame D. Clark

THE dictum of Clark Wissler that 'New World culture is [thus] a kind of pyramid whose base is as broad as the two Americas and whose apex rests over Middle America' is one of those brilliant generalizations which at once sum up the conclusions already reached, and point the way to further progress.

From the vantage of today one may agree with A. V. Kidder (22, p. 145) that American archaeologists have been unduly neglectful of the broad base of their pyramid. Yet it would be churlish to blame them when the apex was so enticing, so rich, so bizarre and above all so enigmatic. Indeed, when men first descried the peaks of Maya, Mexican and Peruvian achievement, it seemed hard to connect them with the lowly foot-hills of cultural attainment familiar in the temperate latitudes of the western hemisphere. Until the underlying unity of civilization in the New World was recognized, its pyramidal structure could hardly be appreciated; in default of this it is easy to understand how archaeologists tended to neglect cultures, which, however interesting they may appear to us from the historical angle, must have appeared to them as intrinsically poor and dull. Then again it was only on the edges of the pyramid that the foundation layer was visible; elsewhere it was buried under a superstructure, massive in proportion to its attractiveness.

Theoretically, also, the conception of the homogeneity of American civilization implied acceptance of the autochthonous development of its higher manifestations, which had to be won in the teeth of the opposition of the main body of Old World anthropologists. It was in many ways unfortunate that the study of American prehistory came to life at a time when evolution was being displaced by diffusion as the magic key of anthropology. American scholars had to fight against a tide which bore their European rivals forward to a temporary but illusory triumph. Perhaps on balance it was a gain that they had to prove themselves and win through against the tendencies of the time. The modern view of evolution and diffusion, as two of a number of

processes through the complex interaction of which cultures have developed, is one which we owe to American scholarship and teaching. It is a balanced view in comparison with which earlier teaching appears doctrinaire and lacking in reality.

As D. S. Davidson has put it (9, 276n.) the diffusionists who tried to account for New World achievements in terms of Old World spreads were only too prone to rely upon the distribution of culture traits which ' can be valued at zero for comparative purposes '. Thus ' the innate similarities . . . in all essential features ', used by W. Schmidt (43) to link South American with Old World culture-spreads, were too generalized to prove historical connexions. The Heliolithic interpretation of the higher cultures of Middle America, advanced by G. Elliot Smith (45) and W. J. Perry (33), was frankly mystical. To those who required evidence of the trans-Pacific Odyssey of the Children of the Sun the proffered ' agreements ' between Old and New World cultures were likewise either so general as to be valueless or, if specialized, were just illusory. Elliot Smith's elephants (46) could hardly have trampled more effectively on any remaining respect for the gospel preached by himself and his disciple.

Some people, especially those whose knowledge of New World archaeology was slight, found it difficult to credit the aborigines with the ability to raise their own civilization independently of Old World inspiration. To many such the message of Baron Erland Nordenskiöld, best known in this country through his Huxley Memorial Lecture on ' The American Indian as an Inventor ' (30), proved convincing. Unlike some European theorizers, Nordenskiöld had spent many long and arduous years in the field of South American archaeology, and his conclusions carried with them outstanding authority. In addition to many technical inventions he attributed to the American Indian the achievement of domesticating the animal and plant life of his habitat so effectively, that during the four centuries since the Discovery the white man has failed to make a single contribution of importance. The native fauna gave poor scope, but from it he domesticated the llama, alpaca, guinea-pig and turkey. Of plants he domesticated hundreds, some of which, notably maize, potatoes, Jerusalem artichokes, beans, tomatoes and tobacco, were eagerly appropriated by the Old World. As E. D. Merrill, the Harvard botanist, has argued (28), no amount of agricultural knowledge cradled in an Old World environment would have availed the original immigrants, confronted by a strange and bewilderingly rich flora.

The higher cultures of Yucatan and the highlands of Mexico and Peru are now generally regarded as substantially native growths. This does not, of course, exclude the possibility that Middle America profited by a few traits diffused by navigators from Polynesia. Indeed, one of the most conservative of American anthropologists, Roland B. Dixon (10, p. 353), has felt able to admit such instances without in any way altering his view on the wider issue.

The underlying homogeneity of New World cultures and their collective distinctiveness from Old World cultures has been stressed by many writers. It may be granted that geographical isolation must have tended to accentuate these characteristics, but they seem also to imply some community of origin among the cultures from Alaska to Cape Horn. This gives point to Nordenskiöld's words (31, p. 249): 'incomparably greater similarity exists between civilizations as far apart as those of the Calchaquis of Argentina, and the Pueblos of North America, than between the culture of any Indian tribe and that of any people in the whole of Oceania'.

Again, while at pains to emphasize the wide range of variation in the physical type of the American Indian, anthropologists agree that 'there cannot be the least doubt as to the general somatic homogeneity of the race and the place of its origin . . . [or] of the observed basic unity of this type, across Asia and down to Cape Horn' (Wissler, 50, p. 375).

Thus it can be concluded on both cultural and physical grounds that the origins of New World humanity admit of study on the broadest basis. Beneath and beyond the glittering edifice of Middle America we may envisage a foundation layer, the nature and construction of which is still obscure, though even now in process of definition.

Two main ways of approach are open, those of comparative ethnography and of prehistoric archaeology. Already we may arrive at the broad outlines of the structure along the former, but for details and for empirical proof of the sequence of building we shall have to rely upon the latter. In exploring the archaeological approach I am mindful that progress along it is essentially a task for the future; but while looking forward it is permissible to try and appraise something of what has already been achieved.

The possibility of deducing by purely ethnographic studies the characteristics of the basal layer of New World culture is implicit in the conception of American civilization espoused in the opening sentence

of this article. By hypothesis the lower cultures marginal to those higher in the scale of achievement may be expected to preserve elements of the original spread. It is, however, not always easy to be sure how far the marginal cultures are in fact primitive, how far they have been subject to degeneration, and how far they have absorbed traits by diffusion from more advanced regions. Certain controls are, however, available. The New World can show two major zones of primitive culture, divided by a more highly developed belt (FIG. 1). As Nordenskiöld has shown (31, p. 254–5), it is possible to list a large number of traits common to the lower cultures north of Mexico and in the extreme south and southeast of South America (Tierra del Fuego, Patagonia, etc.), but absent from, or of sporadic occurrence in, the intervening higher cultures; skin tents, bone harpoon points, bark buckets and fire-making by iron pyrites and flint are cases in point. The existence of two widely separated provinces allows us to check one by the other and so to arrive at conclusions based on agreements between the two. Then, again, there is the excavation of stratified sites. So far as objects of material culture which commonly survive on ancient sites are concerned, the archaeological method is capable of controlling decisively both the loss and the acquisition of culture elements.

A number of distinguished American anthropologists have tried by means of comparative ethnography to reconstitute the nature of the immigrant New World culture. In the following summary I am omitting certain aspects of culture, not because others have been wrong to include them, but because within my self-imposed limits I think it better to concentrate on traits more frequently and more effectively amenable to archaeological control. With these reservations, Kroeber (24, fig. 35, p. 349) and Wissler (50, p. 316) agree upon the following characteristics :—

an economy based on hunting and food-gathering, the dog alone being domesticated ;
knowledge of basketry, cord-twisting and netting ;
use of wooden, bark and skin vessels ;
ability to flake (and according to Kroeber to grind and rub) stone ;
use of clubs, harpoons, spears (or darts) and spear-throwers.

Among the leading features absent may be detailed :—

a knowledge of agriculture and domestication of animals—other than the dog ;
use of pottery, the wheel, the plough and the loom ;
practice of metallurgy.

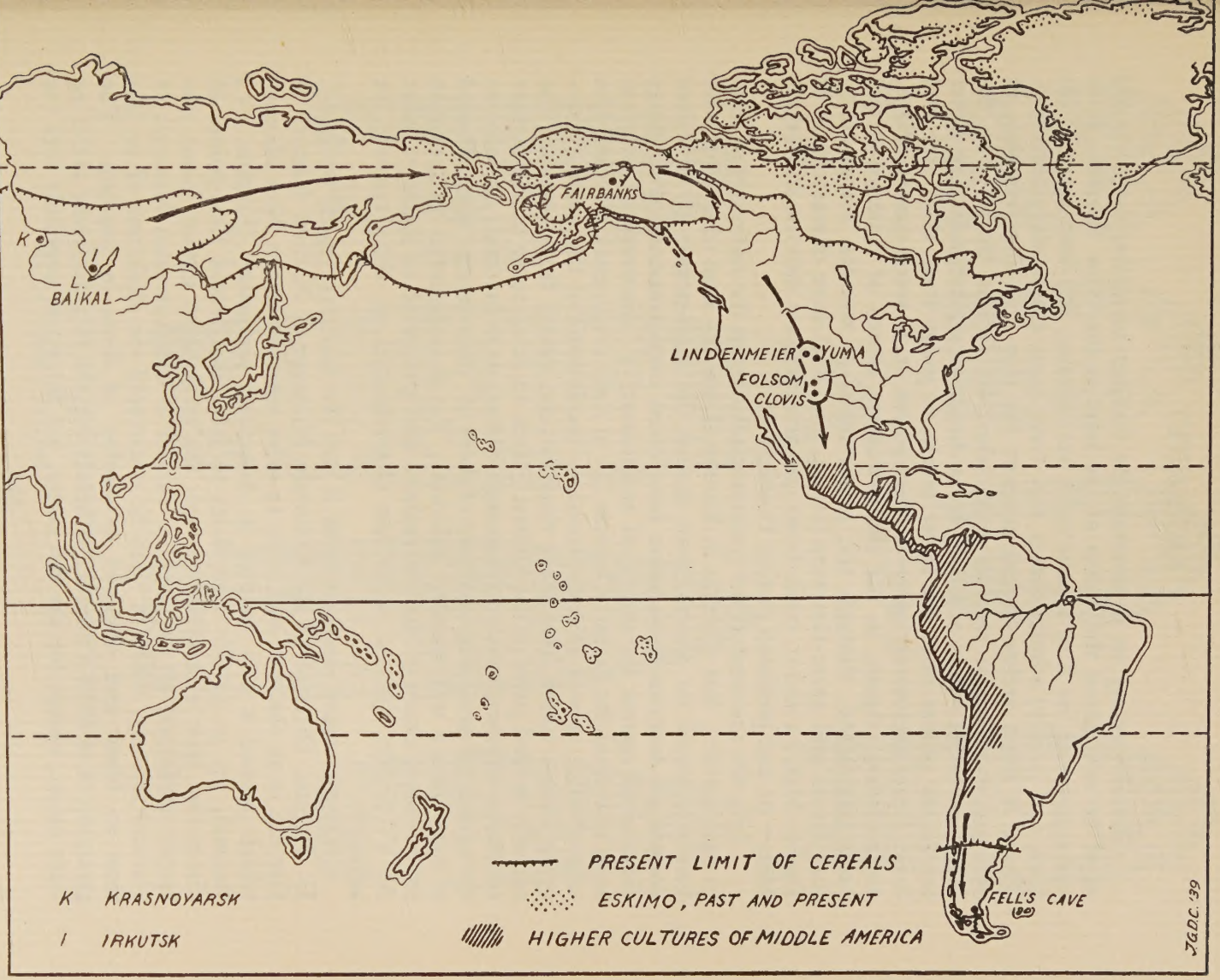

FIG. 1 (*see* p. 120)

Before passing on to examine the findings of archaeology a word must be said about the status of the bow in the New World. Both our authorities list it as a basic trait, but Wissler, at a later stage in his book (50, p. 387) admits that it may have been a secondary accretion. There is some archaeological support for this. In the sequence of archaeological stages recently established by Junius Bird (3) in the Magellan Strait region of Chile, arrow-heads were confined to the upper levels, the points from the lower levels, to judge from their size and form, being exclusively spear- or dart-points or, in some cases perhaps, knife-blades. Again, in the south-western States of America it has been established, through the preservation of wooden components, that spears and spear-throwers (FIG. 3, nos. 1–3) were characteristic of Basket-Maker I and II, while bows and arrows came into use in Basket-Maker III and persisted during Pueblo I–V.

It is not uncommon for questions relating to the antiquity of man to cause strife ; but whereas in Europe it was the men of science who had to contend for ancient man against the high-priests of Christian dogma, in America these same have often been constrained to range themselves against the uncritical enthusiasm of ' discoverers ' only too keen to extend the range of human life in their continent. It would be unprofitable, as well as ungenerous, to recall some of the more extravagant claims which have from time to time issued from some of the recently settled parts of the United States, to retail some of the sterner strictures of savants from the eastern States, or to meditate ruefully on the occasional involving of certain of them in ' discoveries ' since allowed to lapse into a well-merited oblivion. Yet it is essential to approach the problem aware of the atmosphere and prepared to discount what A. V. Kidder (22, p. 143) has characterized as the ' craving for antiquity '.

Despite many previous finds it was the discovery made by Mr J. D. Figgins, Director of the Colorado Museum of Natural History at Denver, in an old river-bed some 15 miles west of Folsom, New Mexico, which opened a new chapter in American prehistory (Figgins, 11 ; Renaud, 37, p. 43–8). His claim to have discovered flint-points of distinctive type in association with the remains of extinct bison was amply confirmed by Dr Barnum Brown of the American Museum of Natural History, when in 1928 he uncovered the skeletons of no less than 23 bison and obtained a number of flints in position. The grouping of so large a number of beasts and the fact that their skeletons were intact, except for the tail bones, led Brown to conclude that the

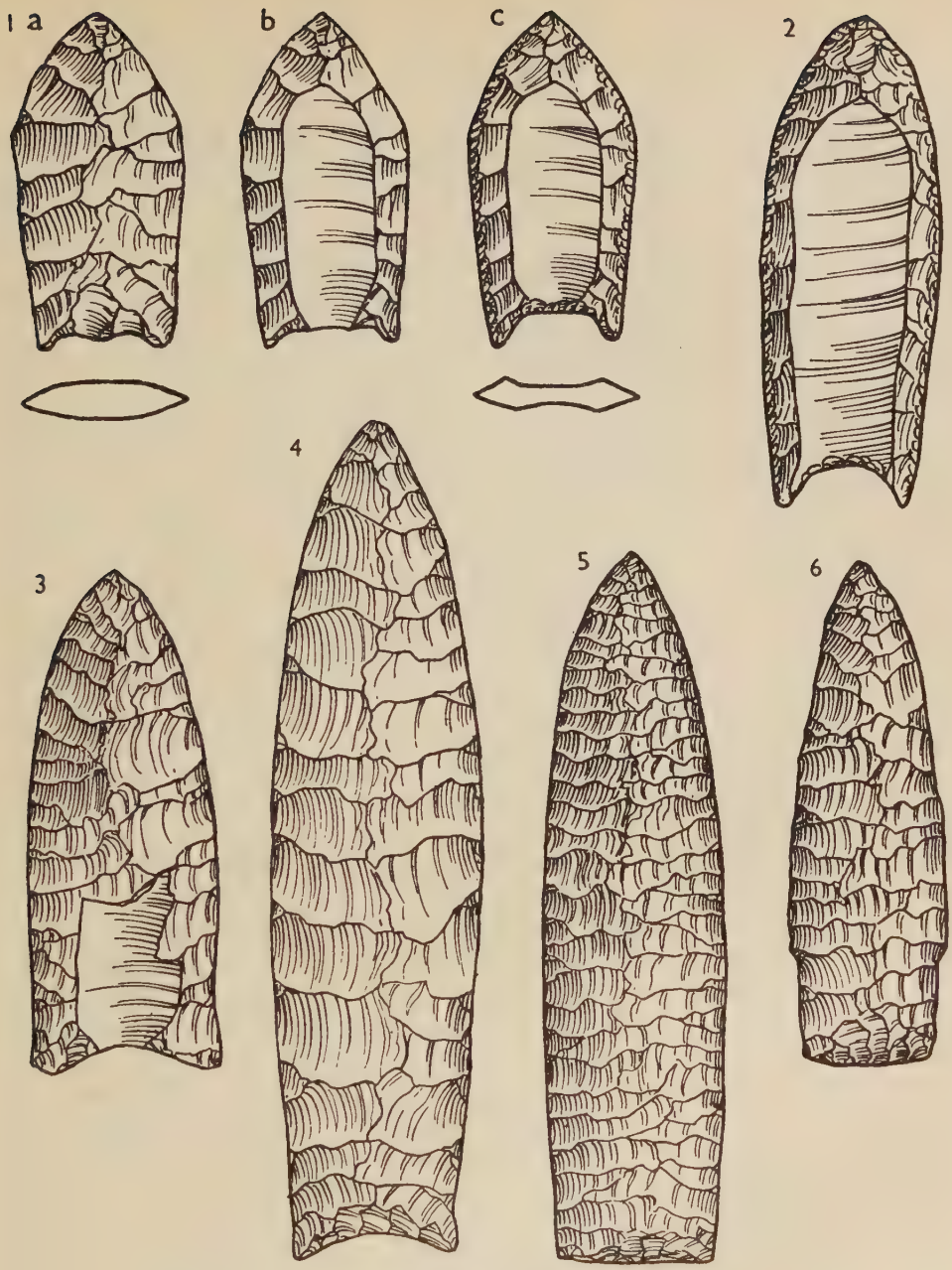

FIG. 2 (1/1)

No. 1 a–c, Squat variety of Folsom point at different stages of manufacture
No. 2, Leaf-shaped Folsom point
No. 3, Folsom-like point
Nos. 4–6, Varieties of Yuma point

bison had been skinned and butchered as they lay. According to Bryan (6, p. 141) one flint-point was found ' imbedded in the clay between the rib bones ', so betraying its use as the head of a projectile, almost certainly a spear or dart.

The Folsom point, now one of the leading fossils of American prehistory, is a thin blade shaped by pressure flaking on both faces. Its peculiar feature is a broad shallow groove or channel on each face, the negative scar of a flake struck from the base and extending two-thirds of the length, giving the point a characteristically bi-concave section. In plan the points may, as at the name-site, be squat with the greatest breadth well above the middle (FIG. 2, no. 1), or they may, as Frank H. H. Roberts has pointed out (41, p. 15–7), conform to an elongated leaf-shape (FIG. 2, no. 2). The treatment of the base also varies; sometimes it is hollowed out to form a regular curve (FIG. 2, no. 2), sometimes it is square (FIG. 2, no. 1c) and sometimes wavy. The hollow base is flanked by ears which vary considerably in length. The grooving or channelling of both faces is generally considered a device for facilitating the hafting of the point, presumably in a forked foreshaft. Points in which the grooving is poorly developed (FIG. 2, no. 3) are usually distinguished as Folsom-like points. These tend to be more variable in plan.

Knowledge of the Folsom culture has since been extended by Dr E. B. Howard's examination of a hearth with burnt bison bones and a domestic flint industry, including knives and scrapers (17, p. 95–7), and particularly by Roberts' investigation at Lindenmeier, 28 miles north of Fort Collins (41), Colorado. At the latter site we have a midden, which, accumulating round the margin of a pond or marsh, had incorporated quantities of discarded bones and domestic implements. Among the fragmentary and sometimes burnt bones each of the extinct bison found at Folsom was identified (*Stelabison occidentalis taylori* and *Bison oliverhayi*), as well as fox, wolf and rabbit. Of even greater interest was the stone industry, comprising scrapers on long and squat flakes, side-scrapers, knives, ' choppers ' (one of them apparently a core tool), pieces of utilized sandstone, lumps of haematite striated from rubbing (body painting ?), and some finely pointed flint implements probably used for engraving bone. Although described as ' gravers ' these latter have, it must be emphasized, no connexion with the ' burins ' of Upper Palaeolithic industries. The hafting of these small pointed tools, which are also known from the Basket-Maker culture (FIG. 3, no. 7; after Guernsey and Kidder, 14, pl. 35g), is shown by their occurrence in the houses and middens of the Old

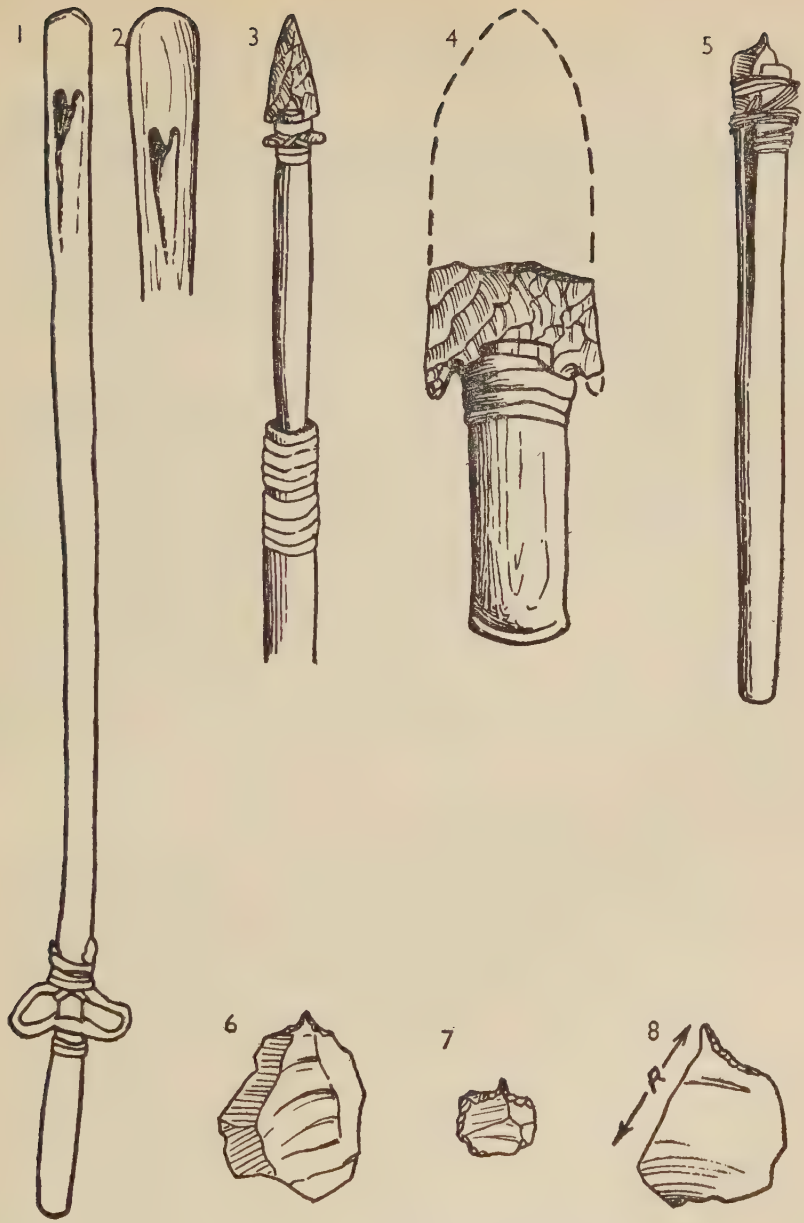

FIG. 3

Nos. 1, 2, Basket-maker wooden spear-thrower and detail of another $(\frac{1}{4})$
No. 3, Basket-maker notched stone spear-head hafted in foreshaft $(\frac{1}{2})$
No. 4, Basket-maker knife blade set in handle. Note that notches point towards end of blade; in the case of spear-heads they are at right-angles $(\frac{1}{2})$
No. 5, Awl-like 'graver' in handle from St. Lawrence Island $(\frac{1}{5})$
No. 6, Awl-like 'graver' from Lindenmeier Folsom site $(\frac{1}{2})$
No. 7, Awl-like 'graver' from Basket-maker cave, Kayenta $(\frac{1}{2})$
No. 8, Awl-like 'graver' from St. Lawrence Island $(\frac{1}{2})$

Behring Sea culture excavated on St. Lawrence Island by Henry B. Collins, in some cases with wooden handle and baleen binding intact (FIG. 3, no. 5 ; after Collins, 8, pl. 41, 8 and pl. 56, 1). In their ancient Eskimo context the ' gravers ' doubtless helped to execute the ivory engravings which lend such distinction to the culture discovered by Collins. Most unfortunately the organic component of the Folsom culture is yet unknown to us. Its recovery is one of the chief desiderata of American prehistory.

Evidently the Folsom people specialized in hunting the bison, using for the purpose some form of missile tipped by beautiful, if fragile, stone heads. Whether they used bows or spears must remain to some extent in doubt until their weapons are recovered under conditions which permit the survival of wood. Yet, while Roberts is no doubt correct when he says ' there is nothing definite to indicate whether the points were used in arrows or spears ' (41, p. 21), the probability is that they were in fact hurled from such spear-throwers as have come down to us in certain desiccated Basket-Maker caves (FIG. 3, nos. 1, 2). Renaud (38, p. 65) has calculated the average length of the Folsom point at *c.* 45 mm, with a range from 17 mm to 75mm. Unless, which is unlikely, Folsom man used the same form of point for spear and arrow-head, it is the maximum measurement which is significant.

To judge from the distribution of the characteristic points the Folsom bison hunters ranged over that part of the High Plains comprised by SE Wyoming, SW Nebraska, SW Kansas, East Colorado, and the western limits of Oklahama and Texas. Within this region the sites are widespread, confirming the impression of nomadic existence. The absence of house-remains may be due to defective exploration, but more probably it implies the use of light structures such as would leave no tangible trace. The pursuit of bison must have yielded plenty of skin, while the abundance of scrapers on domestic sites suggests that use was made of the material so readily available. It is a fair inference that Folsom man lived in skin tents. In the absence of pottery it can be assumed that he used wooden, bark or skin vessels—most probably the latter. Whether he wielded wooden clubs, plaited baskets or twisted cord there is yet no means of telling. When more bones from midden deposits have been identified perhaps we shall know whether, like the Basket-Makers, he had domesticated the dog, a point of some interest in view of Wissler's doubts as to the status of the domesticated dog in New World culture (50, p. 387). Our knowledge of the Folsom

culture is admittedly meagre; it is significant that, in so far as the pattern is known, it conforms to that postulated by ethnographers for the basic culture-spread of the New World.

It would, however, be wrong to accept the Folsom industry without qualification as representating the earliest phase of this spread. One reason why the Folsom point has attracted so much attention is precisely that it is unique among the lithic industries of the world. It is further, as we have seen, somewhat narrowly restricted in geographical range. More widespread in the New World as a whole are Folsom-like points and a type named after Yuma, Colorado. Frequently showing pressure flaking of a high order, the Yuma point exists in three main varieties according to the treatment of its base, which may be concave (FIG. 2, no. 4), square (FIG. 2, no. 5) or slightly tanged (FIG. 2, no. 6). A good example of the first variety was obtained from the silt of a river-bed at Coldstream, near Fairbanks, Central Alaska, during gold-dredging operations in 1933 (Rainey, 36, p. 394 and fig. 9, no. 5). At the opposite extreme Bird has excavated what appears to be a Folsom-like point from his lowest level at Fell's Cave, near the Magellan Strait (3, p. 270 and fig. 27, bottom right corner).

On the principle that widely diffused traits are likely to be more ancient than narrowly distributed ones, it might be argued that the Yuma rather than the Folsom industry represents the early New World culture spread. Equally significant is the fact, pointed out by Renaud (38, 65), that a Folsom point in the course of manufacture passes through a stage when it is not to be distinguished from a Yuma point. At one time it was thought that the groove or channel which lends its special character to the Folsom point was formed at an early stage in its production, but systematic study of the workshop debris from Lindenmeier brought to light a number of the actual 'channel flakes' and proved beyond cavil that these were struck after the point had been completely flaked into shape (41). Successive stages in the production of a Folsom point of the stubby variety are illustrated by FIG. 2, nos. 1 a-c, from which it will be seen that the peculiarities of the Folsom point are secondary. The facts of geographical distribution and of technology thus combine to suggest that the Folsom industry is specialized and represents a side branch from the main stem. The Yuma point, on the other hand, may well prove to represent the immigrant culture in its primitive, unspecialized form. But it would be unwise to dismiss the possibility that further research will bring to light earlier industries which may have escaped detection partly on account of their very antiquity.

The age of the Yuma and Folsom points is still undetermined. Some have argued for their high antiquity on the score of their association with extinct animals. The association of Folsom artifacts with at least two varieties of extinct bison has been proved at many sites. Associations with mammoth remains have been claimed for sites at Clovis, New Mexico (17, p. 95), and Dent, Colorado (42, p. 160). Harrington (15) has recorded human remains and artifacts with bones of the ground sloth in the Gypsum Cave, Nevada, while Bird's earliest levels in southern Chile have given the same association (3, p. 270). However, as Edwin H. Colbert has put it (7, p. 184), the crucial question to be asked when interpreting such a find is: 'Was this association within the Pleistocene period, or did it take place in post-Pleistocene times?' In point of fact there is no agreement among palaeontologists when the various animals concerned died out in the New World; but few would care to contradict Colbert's conclusion 'that many Pleistocene mammals in North America, such as the horse, camel, sloth and mammoth, persisted until a few thousand years ago'.

Some advance towards the solution of our problem might be made if the causes of the extinction of these creatures could be determined, but this unfortunately is far from the case. It is, however, worth remarking that while some animals are able to adapt themselves to surprisingly big changes in their natural environment they are sometimes very susceptible to human activities. The influence of the games at Rome on the pluvial fauna of North Africa, described by E. W. Bovill in ANTIQUITY (1929, 417), is here particularly relevant. The extinction of the wild bison on the High Plains of North America, where the advance of the railroad was preceded by a wave of unparalleled slaughter, is a yet more drastic instance. Within a space of fifteen years the 'herds of enormous, of incredible magnitude; herds so large that they covered the waving grass land for hundreds of square leagues', which in Theodore Roosevelt's words 'occupied days and days in passing a given point' when on the march, were reduced to about 500 head. The suggestion that the disappearance of a Pleistocene relict fauna might be attributed directly or indirectly to the activities of man was first made by G. Grant MacCurdy. Twenty years later it found echoes at the Philadelphia Symposium on Early Man, when Barbour and Schultz (2, p. 209) admitted its possibility and E. H. Sellars (44, p. 209) stated his 'hearty accord with the view that the Indian hunter had much to do with the extinction of some of the large mammals'. Whatever the future holds, it is abundantly evident that in the existing

state of knowledge the well-proven association of Folsom man with extinct bison proves little as to his antiquity, one way or the other.

Within certain limits geology is more helpful. At least it seems to set a term to human settlement in the New World. The first point to be emphasized is that no find of human remains or artifacts beneath deposits of a major glaciation has yet been established. Again, it is significant that, in a continent of which the existing and recent coast-line is strewn with ancient middens, such are conspicuously absent from raised beaches of inter-glacial age (Johnston 20, p. 41). Negative evidence is proverbially dangerous, but it is in this case impressive enough to convince Antevs (1, p. 305) and other leading geologists that man reached America at some date after the climax of the last glaciation. At their maximum extent the Pleistocene ice-sheets covered the whole of North America, roughly speaking north of a line between Seattle and New York, with a broad lobe south of the Great Lakes, except for most of Alaska, parts of Yukon and certain Canadian islands north of Latitude 70° N. The precise limits of the last (Wisconsin) glaciation are still undecided, but it was certainly extensive enough to bar access to central North America until its retreat was already well under way. The route opened from central Alaska to the Great Plains by the melting of the Wisconsin ice-sheet led ' eastward to the Mackenzie and thence southward along this river and the eastern foot of the Rockies ' (1, p. 306). On a geochronological basis the same authority estimates that man could have passed along this route between 15,000 and 20,000 years ago. It must be confessed that these figures have tended to exercise a mesmeric effect ; too often they have been applied without a shred of worthwhile evidence to the actual arrival of man or even to specific American cultures. In real life what is actual rarely approximates to what is possible.

If geology can fix a lower limit, archaeology can go some way to supplying an upper one. Much of the territory in which the Folsom point occurs was occupied by the Basket-Makers and later by the Pueblo peoples. The former, when they first come into view, were on much the same level as the Folsom folk, living as food-gathering nomads, ignorant of pottery and using the spear and spear-thrower for hunting. The shape of the Basket-Maker spear-head, however, is quite distinct from a Folsom or Yuma point, being roughly triangular with side notches to catch the binding (FIG. 3, no. 3). It is generally agreed that the Folsom culture must have preceded the Basket-Maker. Stratigraphical evidence is as yet meagre, but a Folsom-like point was

found by Howard in company with horse, camel, antelope, bear, bison, caribou and musk-ox, some four feet below burials of ' a people probably related in some way to the Basket Makers ' in Burnet Cave, New Mexico (18, p. 406). The absence of bones of extinct animals from the few Basket-Maker I sites so far investigated also points in the same direction (Barbour and Schultz, 2, p. 192). In terms of absolute chronology the sequence implies far less than it would have done a few years ago, when generous dates were allowed to the early Basket-Maker stages. The application to the timbers of ancient structures of A. E. Douglass' tree-ring chronology has reduced the date of Pueblo I to A.D. 700–900. Since Basket-Maker III overlapped Pueblo I fairly completely, Martin Brown's estimate of mid-fourth to late-ninth centuries A.D. for the total Basket-Maker range appears eminently reasonable (5, p. 422).

The higher cultures of Middle America offer a further clue, since the food-gatherers must have passed through the region prior to their development. The Maya erected monuments dated according to their own calendar at an early stage in their history. Unfortunately, however, there is no agreed correlation with Christian chronology, authoritative estimates for the earliest ' dated ' monuments ranging from A.D. 50 to 550 (Kidder 22, p. 149). It is in any case certain that the calendar must have taken generations to perfect. Wissler (50, p. 321) puts the inception of the Copilco-Zacateno stage in Mexico back to 200 B.C. ; but, according to Kidder (22, p. 146), Kroeber and Vaillant decline to believe that the earliest remains yet discovered in Mexico or Peru are older than the time of Christ. The origins of the Mexican, Maya and Peruvian civilizations remain obscure, but it seems reasonable to allow several centuries for the economic revolution which made them possible. In Kidder's (22, p. 150) opinion 1000 B.C. is an irreducible minimum for the origin of American agriculture and settled life. If this is accepted our food-gatherers cannot have arrived in Middle America later than the second millennium B.C. The development of higher cultures in this region first divided into two the spread of food-gatherers in the Americas ; it may even be that their southward drift to Cape Horn was impelled by pressure from the expanding Inca Empire.

If the earliest Eskimo spread could be dated, this might give us another upper limit ; but, while by his discovery of the Old Bering Sea culture Collins (8) has extended the vista of Eskimo antiquity beyond the horizon of the Thule culture described by Therkel Mathiassen (27), this aim is still far from being realized.

We are thus left with several millennia to play with. The food-gatherers may have reached the Great Plains as long ago as *c.* 12,000 B.C.; on the other hand they need not have arrived much before 1000 B.C. Until the study of climatic animal and plant history since the last ice-age is very much more advanced in America, it seems unlikely that we can expect much more precision. Meanwhile, if archaeologists could find us traces of the early nomads stratified below remains of settled peoples in Middle America, we should have something more to go upon.

Space forbids detailed consideration of the bearing of physical anthropology upon the problems of New World origins ; but two facts must be stressed if we are to view the archaeological evidence in its true perspective. First, as Hrdlička has frequently insisted (e.g. 19), no human skeletal material has been recovered from the New World which does not fall within the range of recent types in America. Secondly, the affinities of the American Indian, despite the wide diversity noted by Hooton (16), are categorically Mongoloid (Boas, 4 ; Wissler, 50, p. 369–70). On the existing evidence the verdict of physical anthropology is that man came to the New World from northern Asia in geologically recent times.

Whether the earliest Americans passed from northern Asia by a land-bridge or whether they had to cross the Bering Strait by boat, depends upon the date of their arrival. If the vanguard reached the ice-free portions of Alaska at the height of the last glaciation, for which there is no evidence, but is not by any means impossible (Smith, 47, p. 91), they may very well have come by dry land ; a 20-fathom lowering of sea-level would be sufficient to create a broad land-bridge. If on the other hand, as seems more likely, they did not come until the Pleistocene ice-sheets had already melted considerably and brought about a eustatic recovery of sea-level, then they must have come by boat. Today the distance between East Cape and the Seward Peninsula is only 56 miles ; and thanks to three small islands there is no stretch of open water exceeding 25 miles. An observer standing on high ground near Cape Prince of Wales can see miles of Asiatic coast in clear weather. The powers of navigation displayed by the Canoe Indians of Tierra del Fuego (Lothrop, 25, p. 143–8) should warn us against underestimating the seamanship of the first Americans.

Whatever the method of transit, the route followed by successive invasions of America, prior to the European Discovery, is itself of outstanding cultural interest. It lay across great tracts of country outside

the limits of cereal cultivation (FIG. 1), much of it barren tundra. Thus the western entry into the New World acted as a filter through which only food-gatherers could pass. In this respect geographical circumstances strongly underline the conclusion of archaeological and ethnographical science as to the status of the earlier immigrants to the New World. In Old World parlance they were pre-Neolithic; they belonged, economically and socially, to the same world as Palaeolithic and Mesolithic man in Europe.

It has been urged by Professor E. B. Renaud (38, p. 60–6), whose indefatigable championship of the antiquity of man in the New World is well known, that the close resemblance between Yuma points and certain forms of the Solutrean of France and Spain is proof of their palaeolithic antiquity. But to this there are grave objections. To be valid the comparison should take account of the industries rather than of selected forms. Here we must face the fact that we have as yet no adequate idea of the lithic aspect of the Yuma industry, let alone of its bone and other organic components. Nevertheless, thanks mainly to Roberts' work on the Lindenmeier site, we are better informed about the stone industry associated with Folsom points. Examination fails to reveal any specifically Upper Palaeolithic forms. The burin, as understood by Old World archaeologists, is conspicuously absent. Indeed, so far as the present writer is aware, no single specimen has ever been found in the New World. This outweighs by far any formal resemblances which may exist between Yuma and certain Solutrean points. Further, if instead of seeking parallels in remote regions we turn our attention to one already marked out by physical anthropology as supremely relevant to our problem, we shall find resemblances equally satisfactory in industries very much younger than the Solutrean.

Wissler (50, p. 385) has expressed the opinion that 'the solution of our New World problem lies as much in the heart of Asia as in Mexico or Peru'. Spinden (48) has gone further and recognized the peculiar importance of the Irkutsk and Krasnoyarsk regions of Siberia. But it is only too true, as Professor Tallgren has recently emphasized in his moving farewell to *Eurasia Septentrionalis Antiqua* (XII, 239–40), that despite an importance which 'cannot be overestimated', 'what we know at present, or think we know, of prehistoric cultures and their varying relic cultures in northern Eurasia is extremely little'.

The researches of Petri, and, later of Okladnikov, however, allow us to picture groups of food-gatherers living on the banks of the Angara

river and the shore of lake Baikal, mainly by fishing and the collection of roots and wild grains. On most of the sites in the Irkutsk region, as well as on the Yenisei near Krasnoyarsk (Kartzov, 21), and indeed over a vast territory extending to the Dnieper, the Baltic and the Norwegian shores of the Atlantic, one finds a way of life basically Mesolithic with a material equipment infused to varying degrees with elements derived from cultures based on food-production, truly Neolithic—in some cases even Bronze Age—in character. Their cultural status may most accurately be described as 'modified Mesolithic'. As one might expect, their fishing gear, so intimately linked with their basic mode of subsistence, reflects most clearly their cultural origins, barbed fish-spears and harpoons (Petri, 35, fig. 24 and fig. 23) recalling those prevalent in Europe away back in Boreal time; from Ulan-khada (Okladnikov, 32, fig. 3, no. 9) and Raspútino (Petri, 34, fig. 22) we even have the slotted bone-point with both edges inset with flint flakes. Their pots had pointed bases and were decorated by the impression of mats, combs or twisted cord and frequently had pits disposed below the rim. They ground stone, in some regions making special use of slate, and sometimes polished flint. Their flint missile-points were flaked by pressure and provide some close parallels to the Yuma points (e.g. 32, fig. 5. no. 1; also Tallgren, *E.S.A.* II, fig. 46); but it is interesting to observe the absence of even that modest thinning of the base shown by the Folsom-like points and of that later American device, the side notch. Further it should be noted that the bulk of the Russian points were undoubtedly arrow-heads. Burials in the Baikal region show that the people were long-headed. It may prove significant that authorities are agreed that the earliest identified Americans were long-headed, though it is true we have yet no skeletal material certainly associated either with Yuma or Folsom industries.

Evidence from the lowest of the eleven successive occupations at the Ulan-khada site, neatly separated from one another by sand blown from the shore of the lake, suggests a pre-ceramic and pre-bow stage among the food-gathering groups of the Baikal region. Perhaps it was people at such a stage who spread, possibly under pressure from food-producing groups, to the New World. Although at present we know lamentably little about them, we may suppose them to have been truly Mesolithic in outlook—food-gatherers who may well have domesticated the dog (of Boreal antiquity in the Baltic region). Lacking pottery, they may have used receptacles of bark or basketry. The methods used by their immediate descendants to decorate their pottery

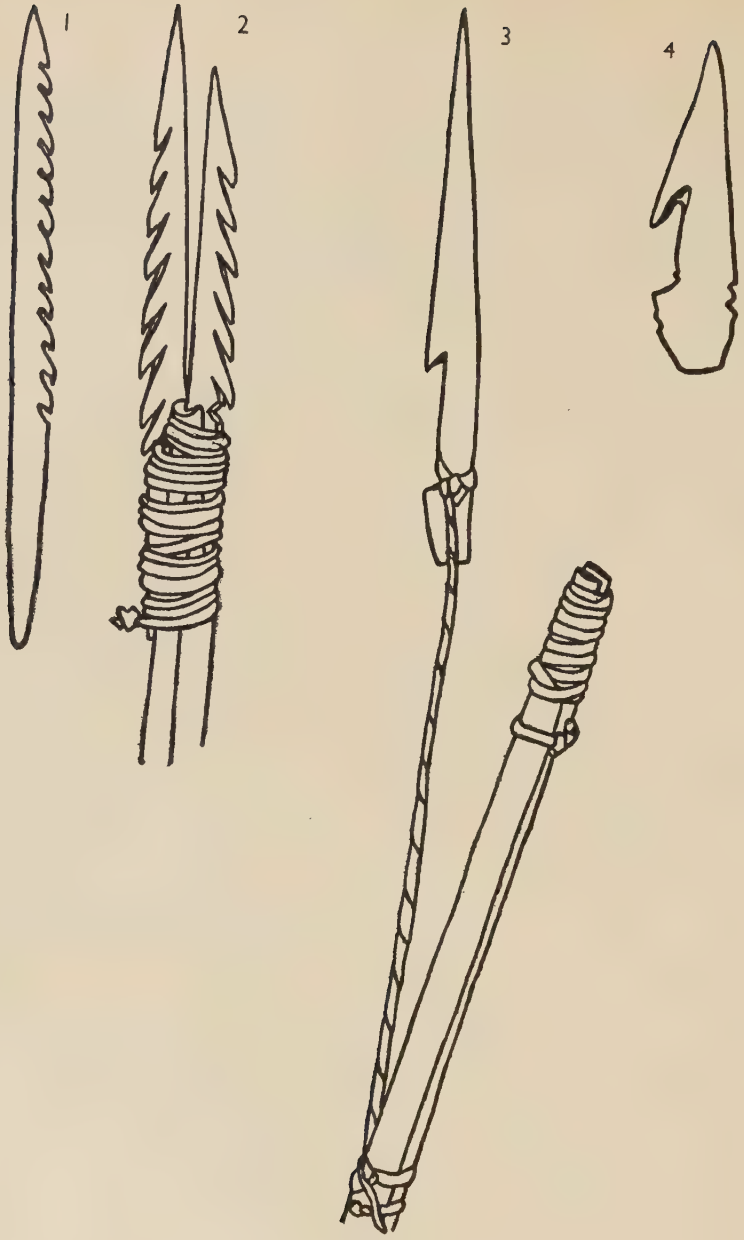

FIG. 4

No. 1, Bone fish-spear prong from Kunda, Esthonia ($\frac{1}{2}$)
No. 2, Fish-spear in use among the Yahgan Indians, Tierra del Fuego (points 10¾″)
No. 3, Harpoon used by the same people (length of head 10″)
No. 4, Bone harpoon head from dwelling-place at Visby, Gotland ($\frac{1}{2}$)

suggests that they knew how to plait mats and twist cord. It is almost certain that they used nets for fishing. They used fish-spears and harpoons, and most probably spears and spear-throwers.

With the possible exception of the pressure-flaked projectiles, which may have been derived from an ultimately Neolithic source, the proto-American culture in Siberia was, thus, essentially Mesolithic. Indeed, all spreads to America, prior to European arrivals from the East, were basically of this character, though some, like the Eskimo, as represented by the Old Bering Sea culture with its pottery, had been modified technically by certain borrowings from food-producing cultures. The hypothesis that the New World was peopled by migrants of Mesolithic status is one which explains many things. Parallels between items in the bone hunting and fishing gear of the Eskimo and of various Mesolithic peoples of Northern Eurasia have often been drawn. It is only as we compare (FIG. 4) the fishing spear and harpoon of the modern Yahgan Indians of Tierra del Fuego with those in use among the food-gatherers of northern Europe several thousand years ago, that we realize the full implications of Wissler's conception of New World civilization.

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To Petra from the West

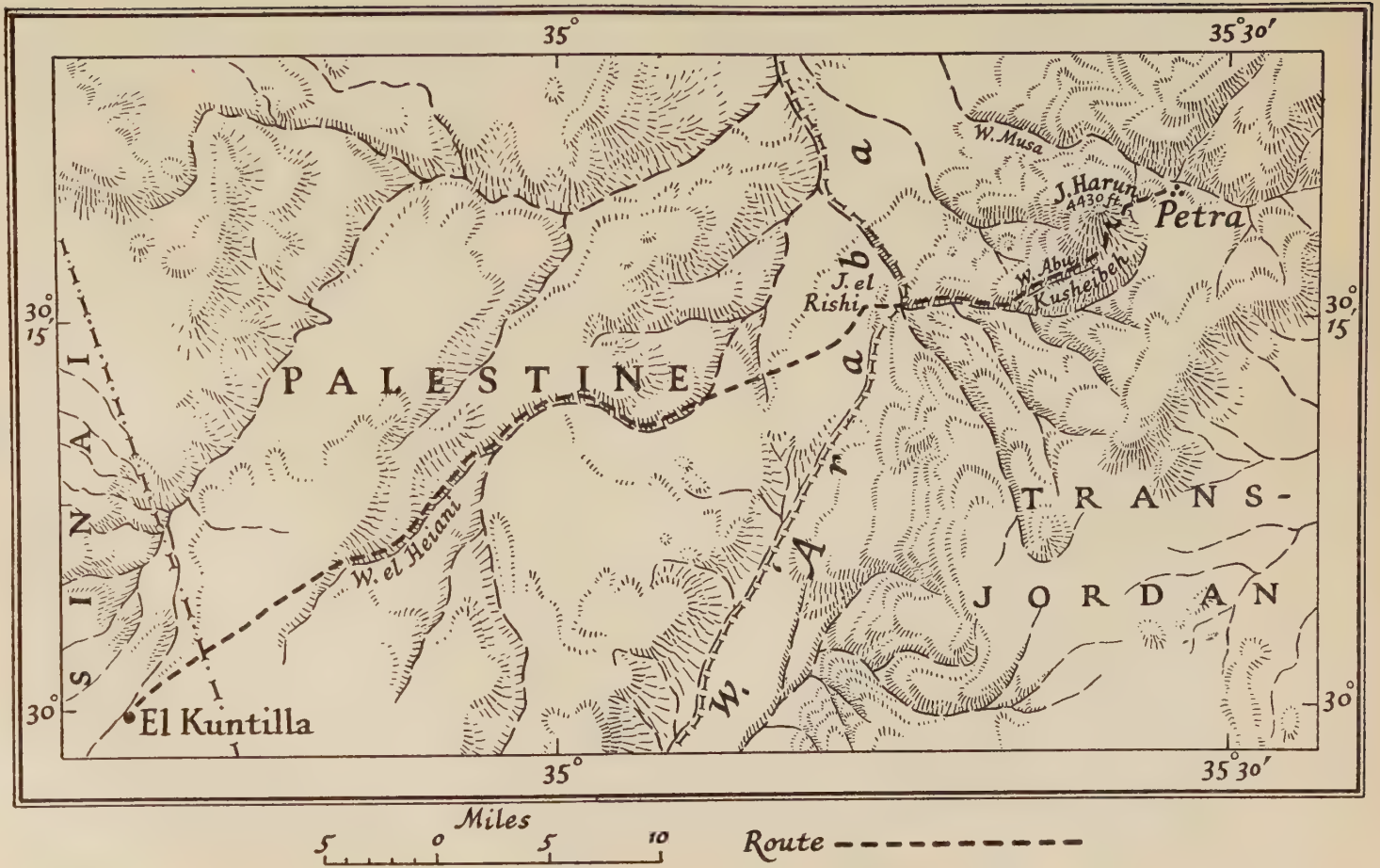
a forgotten Roman highway

by Major C. S. Jarvis, formerly Governor of Sinai

THERE is considerable doubt in my mind whether this account of a journey to Petra should appear in a journal of Antiquity's standard of integrity. The only reason why I have agreed to allow it to be published is that I hope it will arouse interest in this neglected part of the late Roman Empire, with the result that some responsible archaeologist will follow in our footsteps and also see to it that some photographs are taken from the air. This is particularly important, because in the general dun yellow of the desert sand with its outcrops of umber brown rocks, it is extremely difficult when one is on the ground level to decide if one is looking at natural formations or the general lay-out of some vast irrigation system. I realized this the first time I flew from El Arish on the coast to Kosseima, and saw that this stretch of seemingly bare desert I knew so well was dotted thickly with the remains of small stone farm-houses and orchards, and that there was a general scheme of irrigation in every *wadi* (dry water-course).

During my early service in Sinai I was interested in the Turkish plan of campaign against the Suez Canal because, having been on the other side from 1916 until 1918, I heard the usual alarming rumours of the railway the Turks were constructing across the desert and the roads they were making from Palestine to the Canal. A story that I desired to clear up was one from Arab sources that the Turkish Army had made a road that led down from the highlands of Trans-Jordan across the Dead Sea depression into Sinai. It was not the ordinary winding route down the Wadi Ithm that is used today, they said, but another, farther to the north, and with excellent going all the way.

The Beduin is not normally a truthful man, and one is prepared for mendacity of the first water when he is trying to cover up his misdeeds ; but it is difficult to understand why he should lie with precision and emphasis about something that is of no possible interest to him. I think it is possibly due to a desire to please and to give the reply one


35°
35° 30′
W. Musa
J. Harun
4430 ft.
Petra
W. Abu Kusheibeh
J. el Rishi
30° 15′
PALESTINE
SINAI
W. el Heiani
W. 'Arabah
TRANS-
JORDAN
30°
El Kuntilla
Miles
5 0 5 10
Route

hopes for. If I asked about the road from some Arab of the locality who should have known about it, I received a glowing description of its excellence : ' Wallahi, yes, I know the road well and during the war have seen with my eyes lorries in great numbers and big cannon travelling along it '. Later on when I had proved definitely it did not exist the attitude was, ' Of course it did not exist—how could it ' ? though one old gentleman ingenuously explained the mystery away by saying that a recent fall of rock had blocked it in the narrowest part. I saw the fall of rock and estimated this had taken place some centuries before Moses started his wanderings.

There was some reason for thinking that the road might be there because it was quite obvious that the Nabataean city of Petra must have had an outlet to the west. As everybody knows, this forgotten city, carved from the natural rock, lies in a winding valley in the mountains of Edom west of Maan ; from the east the only way into it is by means of a deep narrow gorge with precipitous sides called the Sik. There is no attempt here to write of the wonders of Petra as these have been dealt with very adequately by a variety of writers, from the florid and romantic to the dry-as-dust purveyor of bald facts. If the carvers of this city had foreseen that which was to be written about them in the twentieth century they would never have started the work ; imagine having your eyes compared to ' passionate pools of ink ' which is how one journalist described the appearance of the Nabataean masons !

The attempt to discover the road into Petra from the west was to be made by car, camel and pony. I was to supply the cars and the camels from those of the Egyptian Frontiers Administration, and Peake Pasha of Trans-Jordan was to find the ponies from the Arab Legion, as the expedition was to be an international one and both Egypt and Trans-Jordan were interested. At least we said they were, the argument being that if they were not interested they should have been. Officialdom sets its face very sternly against ' joy-riding ' with Government vehicles and animals, and the suspicion that the explorers into the desert might possibly find some pleasure in an expedition into stark sterility is sufficient to cause those in authority to frown upon any enterprise. When Major Bagnold of the Royal Corps of Signals started his systematic exploration of the very harsh Libyan Desert he and his brother officers were regarded as ' joy-riders ' of the most exuberant variety and no facilities whatsoever were granted them. If they had wished to hit the high spots in the casinos of southern France

leave would have been granted them without question; but as they desired to find out what lay behind the Libyan sands they were regarded with suspicion and as officers who did not take their profession seriously. Today, however, the War Office congratulates itself upon the fact that, owing to its foresight, there are over twenty officers of the Royal Tank Regiment, Royal Corps of Signals and Royal Engineers who know every track in that desert of great strategical importance.

The first part of the journey to Petra was easy as we travelled down the frontier road in Sinai that runs from El Arish to Kuntilla, a camel corps post some fifty miles north of the Gulf of Akaba. Here we stayed the night, and that evening a discussion started as to whether we should proceed to Petra by the unknown road or by the more prosaic round about way by Akaba and Maan. It was pointed out amongst other things by the dissentients from the original plan that the cars would certainly get no further than the Wadi Arabah in the centre of the Dead Sea depression, and that the camels would not be able to surmount the pass on the other side. The result of this was that we started the following morning on the pre-arranged plan to attempt the seemingly impossible, but with the knowledge that a chorus of 'I told you so'! would be sung at the first signs of failure; and this creates an uneasy atmosphere.

Our cars in those days were the Morris six-wheelers with steel caterpillar tracks for sand going. Today they are completely out of date, but ten years ago they were the latest thing for desert travel. They were large and cumbersome vehicles, but had the advantage of being commodious enough to carry a considerable amount of kit, together with water and petrol. We struck out from Kuntilla due east, and were soon in the head waters of the Wadi el Heiani—a boulder-strewn gorge of gravel and coarse sand, sprinkled with tamarisk bushes and the various scrubs of the desert that provide the Dorcas gazelle and the camel with their food and the Beduin with his charcoal. It is a harsh desert, this waste of the Dead Sea depression, but luckily it was the dry season at the time of our journey as we travelled the whole way down the actual bed of this mountain torrent. One learns in desert travel that when one is in hilly and broken country the easiest way, and on many occasions the only way, is down or up some *wadi* where the force of water has swept a clean path of polished gravel and coarse sand.

After travelling some forty miles through this country we came to the bed of the Wadi Araba, the big watercourse that flows between the

Dead Sea and the head of the Gulf of Akaba, but—and here is a point that most people overlook—it does not flow in the same direction. The upper portion flows northward into the Dead Sea, which is 1200 feet below sea level and the lower part, which we struck, flows southwards into the Gulf of Akaba. There is a divide in this depression which rises to the height of 600 feet above sea level, and the big scoop in the earth's surface is not as one supposes from the map a huge valley running all the way down to the Dead Sea.

The Wadi Araba where we struck it was a series of deep cuts in the reddish clay pans, which represent the washings of the mountain ranges and which are general for the greater part of the way. Ahead of us the desert rose rapidly in rugged foothills and mountains, and the skyline was serrated with the unbroken ridge of the Trans-Jordan mountains with Gebel Haroun (the Mount of Aaron) standing out conspicuously to the north. It is on this mountain that Aaron was buried, and there is a big white-washed tomb on the summit that is regarded by the local Beduin as a very holy place indeed, so much so that no Christian is allowed to ascend the mountain. Actually if one wished to do so one could climb it from the western side without any Arab in the vicinity being aware of the fact.

Here by the bed of the *wadi* under an isolated mountain in the valley called Gebel el Rishi we met our camel corps with a large number of baggage camels to carry our kit when we forsook the cars, and a mounted detachment of the Arab Legion on their tough little mountain ponies. Previously I had not considered the horse to be a mountain animal, but after seeing the Arab Legion scurrying up broken mountain sides and galloping along the edges of precipices I have felt inclined to put the pony, or at any rate the Trans-Jordan pony, in the same class as the ibex, the mouflon and the chamois.

The cars were doing well; we swayed, surged and ground our way over hard going and soft, over boulders and down the steep sides of small *wadis*, and we continued working eastwards until we entered the lower part of the Wadi el Khushiebeh which flows down to the depression from the town of Petra. We travelled up this for some miles with the banks growing steeper and higher until there was an unbroken wall of sheer rock on either side.

So far there was no trace whatsoever of the Turks' road and it was manifestly plain that they had not travelled this way for there was not a sign of a rut or a car track. It was then fourteen years since the Turks had waged war in Sinai, but a peculiarity of the desert is the

length of time that car tracks will show on its surface. When I left the Sinai Province in 1936 I saw every time I travelled southwards the deep ruts I had made in 1922, when three days' constant soaking rain turned the whole Peninsula into a tapioca pudding, and I took a week to churn my way through the wet clay gravel from Nekhl to El Arish, a distance of 140 miles. Also on a wide clay-pan in the southern Libyan desert there are today the tracks made by an Army light car patrol in 1916. They travelled across the pan after one of the very infrequent rain storms and their tracks remain, not as ruts, but as embossed ridges raised on the level clay surface. The explanation of this is that the constant sand-laden wind of the desert scores away the surface of the clay to an appreciable extent every year, but where the car tyres had packed it and compressed it whilst damp it has resisted the action of wind-driven sand.

I have said that we saw no tracks of Turkish cars the whole way, but later on when we had reached country that was obviously impossible for cars and all wheeled traffic, and will remain so for ages to come, I saw imprinted in the sand the unmistakable pattern of a Dunlop cover. I had imagined I had seen something like this several times previously, but here it was picked out in all its detail in the sand and there was no doubt whatsoever about it. A short distance ahead I saw another track and was wondering how it was possible for a car to ascend these mountain gorges when the explanation suddenly dawned upon me. Some original Beduin had soled his sandal with a strip of Dunlop cover, finding the material most lasting and suitable for rocky paths, and it was his tracks that I was looking at. This was the first time I ever met the Dunlop sandal sole, but during the next few years it became very popular in Arabia and is now a recognized adjunct to the desert cobbler's outfit.

When the Wadi Abu Khushiebeh had narrowed to such an extent that the drivers were beginning to wonder it they could turn their cars round we came to the end of things so far as mechanized transport was concerned. Barring our way was a sheer wall of reddish limestone about fifty feet high and it was obvious that in the rainy reason this constituted a waterfall of no inconsiderable size. Above the fall the *wadi* was a gorge of vast tumbled boulders so that even if we had found a way round the obstruction this convenient water-course had ceased to be of any further use to us.

The kit was unloaded from the cars, packed on to the baggage camels and, selecting either a pony or a camel for riding purposes

according to taste, we started on the ascent. The track led up out of the *wadi* some hundred yards or so below the falls, and it was the usual narrow beaten path used by the camels and flocks of the Beduin. It was not until we reached the high ground where the *wadi* fell away in a sheer drop that we realized the track was something more than a Beduin camel path for here, commanding the narrow pass, was a block-house of cut stone—the first signs we had seen that this part of the Wadi Araba had any past beyond an unbroken occupation by the roaming nomad who leaves no mark of his existence except his winding tracks.

At the present time this southern and desert part of Palestine is a wilderness indeed ; but in the past, and not so far back in the past, it lay on the main route from the East. During the Roman occupation of Palestine after the first century A.D. trade flourished to such an extent in Palestine that Akaba, now a small insignificant fishing village at the head of the gulf, was the port at which merchandize from southern Arabia, India and Ceylon was landed. A part of this went up to Trans-Jordan and Syria by the Wadi Ithm to Maan, Amman, and eventually Damascus, but a considerable portion travelled by an at present undiscovered road northwards to the six deserted Roman towns of this area : Abda, Kurnub, Khalasa, Raheiba, Esbeita and Auja.

These towns, which are today quite unoccupied (with the exception of Auja) lie in the area south of a line drawn from Beersheba to Gaza, and it is obvious from their size that in each their inhabitants numbered roughly ten thousand. The district is now known as the Negev and the Jews think, as it had evidently a prosperous past and has definitely no present, being an empty quarter, that it might be used by them for settlement purposes. This suggestion has caused the pro-Arabs, a very vociferous and convincing body, to jump into the arena and prove that it never had a past, that there never was any prosperity or trade, that the towns were occupied by religious hermits and recluses only, and that it is not fit for settlement of any kind, so that the ordinary man does not know what to believe.

The fact remains that this trade with Palestine and the world farther west did come up the Wadi Araba ; that some went northwards to Hebron and Jerusalem, some to the coast at Gaza where it was shipped to Italy and Greece, and some went west into Egypt. It is therefore safe to assume that a well graded highway ran up the *wadi* and that a branch road led over the highlands into Petra, which in those days was densely populated and a place of some importance. I do not

pretend to be an archaeologist; but if the Romans built, or rather carved out of natural rock, an amphitheatre capable of seating over a thousand people, one must assume that the entertainment purveyors of those days saw some reasonable hopes of filling it when a particularly good scrap between exponents of the short sword and shield versus the net and trident was being staged.

For the following five hours we trudged stolidly upwards along a winding way that led over the mountains. The track was so steep in parts and the going so rough that we all dismounted and preferred to walk rather than trust to our animals to get over the difficult places and round the sharp corners. For myself the journey was something of a nightmare as I was responsible for the well-being of the party, and the whole of our rather weighty baggage—our personal kit, our supplies and our water—was being carried on baggage camels who, however excellent they might be on the plains of Sinai, were not trained to winding mountain paths and sheer declivities. Again and again I had to go back and supervise the unloading of some animal that refused to mount a dangerous part of the road, and for this reason I was so distraught that I have a very vague recollection of what I saw on the road. It was essentially a route that one should have followed at one's leisure to enable one to pick up the line of the old Roman track the whole way. Time being a factor, we followed the Beduin path which no doubt cut off corners or diverged to the right or left where wash-outs had occurred.

On two occasions before we reached the shoulder of Gebel Haroun I noticed the orderly line of kerb-stones marking the old made track, and there were three if not more ruined block-houses of cut stone. At the actual shoulder of Gebel Haroun where the road, after leading away up the precipitous mountain-side towards the northwest, turned sharply east again towards Petra, we came to an obstruction across the track that I should have liked to examine in detail.

Unfortunately at that moment we had a lot of trouble with the camels. Two had fallen with their loads, the remainder were jibbing at the ' one in two ' ascent and it looked as if I should have to accept defeat and call off the attempt to make the pass with camel commissariat. I mention this as an excuse for not being absolutely certain about the existence of this obstruction, and it will be interesting to hear a description of it from travellers who have met it in easier and less confusing circumstances.

So far as I remember at this spot the Gebel Haroun rose precipitously to the north absolutely barring all progress in that direction,

and to the south the land fell away in a sheer cliff to a gorge below. There remained a narrow neck on the shoulder of the mountain that was only some three hundred yards wide, and across this was built a solid wall of roughly-shaped stones. The wall was about ten feet high and the peculiarity about it was that it was not exactly a wall, but rather a solid barrage of shaped stone about a hundred yards in width. Through this in orderly zig-zags ran the road, and one could realize what a very efficient line of defence it constituted in the days of archers and troops armed with the sword and javelin.

This apparently constituted the last line of defence, for from this point onwards the road, having crossed the divide, ran by easy gradients towards Petra, which lay in a hollow to the east. We could not see the ruins themselves, but we recognized the peculiar billow-shaped pink hills which surround the Nabataean town and have caused it to be known the world over as 'the rose-red city half as old as time', perhaps the most hackneyed quotation in the English language.

After passing the barrage we began to see obvious signs of past civilization on all sides. The lower slopes of the mountains were terraced for cultivation as far as we could see, and this terracing appeared to be in an excellent state of preservation though it was not being used by the present-day Arabs. It is difficult to say if these terraces were cultivated with vines and olives or whether they were used for narrow strips of corn; they would presumably be suitable for either. Every small *wadi* we crossed had a broken dam across it and on all sides were small stone enclosures—either *kraals* for cattle or orchards for selected fruits.

Then began the well-known carved tombs, store-rooms and dwelling places which are peculiar to Petra. They started in quite a small way—an oblong doorway some ten feet high carved out of the smooth face of the rock and a small chamber inside, and the first specimens we met appeared to be unfinished. As we travelled onwards the doorways and chambers became larger and there was some decoration over the lintel, usually a rough Nabataean step-carving. Finally we came to a big isolated square block of stone standing in a *wadi* that was about the size of two haystacks, and this so far as one could see had been completely hollowed out for occupation.

After this Petra proper began and we moved slowly along through masses of fallen masonry with carved tombs on either side until there hove in sight the pillar of Artuf, which may or may not be phallic; in any case the present-day Beduin have no doubt whatsoever about it

and its name in Arabic is unprintable. The pillar of Artuf looks down on Cook's tourist camp and our journey so far as exploration went had come to an end.

This I admit is an entirely unsatisfactory article about things of interest that were half-seen and also half-forgotten by a small party, none of whom, excepting possibly Peake Pasha, had any knowledge of archaeology. One thing we discovered was that the inhabited part of Petra extended very much farther to the west than is generally supposed, and there is little doubt that the Nabataeans had a road out to the west by the Wadi Abu Khushiebeh, which the Romans afterwards improved and straightened. There is also, so far as one can see, a third road that bifurcates from the one we took and runs out northwest via the Wadi Musa, but this I believe has already been explored. A third point, which may also be of interest to those who oppose Jewish occupation of the Negev so strenuously, is that we did not meet a living soul from the time we left Kuntilla until we were actually entering the outskirts of Petra itself. It is therefore difficult to believe the Arab contention that this area is already well populated by nomad Beduin. From the fauna and feather point of view our trip was equally featureless, for all we saw was one covey of Hayes' partridges in the Wadi Araba, a covey of chikor outside Petra and one solitary Dorcas gazelle, who stamped with irritation at the sight of our cars and regarded them with unspeakable contempt.

Hand-made Pottery in Jutland

by Axel Steensberg*

FOR modern Europeans the wheel is the most characteristic implement used in the making of pottery. The history of the potter's wheel, which has lately been described briefly and clearly by the German, Adolf Rieth,[1] evidently goes back several thousands of years. In southern Mesopotamia the potter's wheel can be traced continuously from at least the fifth millennium before Christ, and the Egyptians adopted the technique 3000 years before our era. It is characteristic that pottery-making with the help of the wheel is man's work, and that it nearly always seems to belong to an advancing urban culture with its associated specialization of labour. It stands, as a rule, for greater efficiency, and indicates, on the whole, artistic degeneration —at any rate in early times, until man has learnt to bring his implement to perfection. At the same time the old technique survived and took on hybrid forms with the new. A similar relation can be observed throughout the history of Danish pottery.

The potter's wheel reached Denmark at the close of the Iron Age, at the same time as the first urban settlements. Hybrid forms between the new and the old techniques can be seen best in the black wares. Vessels are found here, of which the body is formed by hand, while the neck is shaped on the wheel. With the introduction of glazing the hand-made wares sank to the level of coarse utensils, but at the same time small, black vessels of great beauty were made without the use of the wheel in country parts.

This rural industry has continued till the present time, even though it no longer has an economic function. It has been repeatedly and fully described in Danish,[2] and the writer has recently dealt with the subject in English in the periodical *Folk-Liv*.[3] The purpose of the present brief description is therefore, first and foremost, to acquaint

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* Translated by E. Cecil Curwen.

[1] Adolf Rieth, *Die Entwicklung der Töpferscheibe*, Leipzig, 1939.

[2] A. G. Jensen, *Jydepotten vort Lands ældste Haandværk*, Copenhagen, 1924 (principal reference); C. Nyrop, *Dansk Pottemageri*, Copenhagen, 1882; F. Sehested, *Jydepotteindustrien*, Copenhagen, 1881; Laurids Smith, 'Om de sorte jydske Lerkars Fabrikations Maade. . . .', *Iris*, Copenhagen, 1791.

[3] Axel Steensberg, 'Primitive Black Pottery in Jutland', *Folk-Liv* (International Journal of European Ethnology and Folklore), 1939, 113–46.

the numerous readers of ANTIQUITY with the fact that there exists in Jutland a pottery-technique which is a direct survival from ancient times.

The technical process in the production of the black Jutland pottery is, broadly speaking, as follows : the clay that is to be used for making the pots is dug during the autumn so that it can lie through the winter and be exposed to the frost. In this way a part, consisting of small, thick lumps of clay that are not workable, is separated and can be picked out from the mass of raw clay. The latter is wetted by sprinkling water on it the evening before it is to be worked, after which it is chopped about with a spade or fork. It is then made into little balls and taken into the room where it is to be worked and shaped. The working is done with the feet, but first micaceous sand is added in the proportion of three to one, or two to one. Also modern potters, who use the wheel and burn the clay red, add sand when they want to make a vessel for cooking purposes ; because otherwise the wall of the vessel will not stand the expansion caused by heating without breaking. The clay is worked three or four times, and at the same time all kinds of impurities are removed. Then it is cut into strips that are rolled together and worked again with the fists. Finally the clay is rolled up in the form of a conical lump.

When the shaping of the vessel is to begin, the woman who does it puts on a coarse sackcloth apron and sits on a chair with a wooden board on her lap and her left foot on a stool. She wets the board with water from a bucket by her left side. The broad end of the cone of clay is turned evenly on the board ; then the other end is turned downwards, and the thumb of the right hand is pressed down into the upturned base of the cone, while with a little pressure here and there the clay is turned on the slippery board with the help of the palm of the left hand, until it assumes a circular form. The clay is forced out on top in the form of a roll, and the hand inside is pushed right down to the bottom, as is seen in FIG. 1.[4] Now a cloth, consisting of canvas lined with woollen material, is wetted so as to act as a sponge, and is laid over the rim, which is shaped by turning the clay round and round (FIGS. 2, 3). After the body of the pot is pressed outwards somewhat (FIG. 4), the lugs are as a rule applied (FIG. 5). A lump of clay is laid

[4] The illustrations in this article are in one respect different from those published in *Folk-Liv*, in that five of them were photographed by Dr W. Iversen of Vejrup. The rest were taken by the author while studying the only two surviving women potters, Maren Hansen of Vejrup, and Mathilde Nielsen of Sønder Elkær, near Billund.

inside the vessel so as to close the aperture in the base, and the whole is smoothed by turning.

After the pot has been allowed to dry for a period varying from a few hours to one day, according to whether it takes place outside or inside the house, the lower part is wetted again and the woman takes hold of it in order to shape the body of the vessel. To do this the fore-finger-joint of the right hand is used as a kind of hammer inside the pot, while the palm of the left hand acts as a resistance on the outside. After rubbing over the inside with an elliptical smooth stone the feet are added, and the pot is dried indoors for a couple of days because the drying must take place absolutely evenly.

After this drying, as a result of which the pot has become firm and rigid in its walls, comes the more cleanly work of smoothing and polishing the surface. The scraping, which is done with a knife-blade, spoon and handles of different sizes and curvatures, removes small knots and fills up the holes after them. The vessel, which, like all the Jutland pottery, receives no special glazing, is meanwhile not impervious to liquids. Therefore the pores must as far as possible be closed, partly by a surface dressing of greasy clay or marl, and partly by smoking. If in spite of this the pots are not quite water-tight one can immediately attain complete impermeability by boiling them in skimmed milk—a method which has also been used in the Hebrides for making the so-called ' craggans ' water-tight.[5]

The greasy clay or marl is wetted and smeared over the vessels during the final drying.[6] When this slip has soaked well in and become dry it must be smoothed if a plain black surface is desired. This is done with a smooth, round flint, which only becomes really good after being used for about twenty years. Sometimes all the surfaces are treated: for example, the rim, and in the case of milk-vessels the whole of the inner surface, so that it may be quite smooth and easy to keep clean, in order that the milk may keep fresh better. Sometimes spiral ornaments are employed, or criss-cross, zigzag or wavy lines.

After further drying, during which the pots have been covered up to protect them from strong light and from rapid drying, they go into the smoke-kiln where the fine pores are closed with a tarry deposit. The smoke-kiln is, as FIG. 6 shows, an ' earth-house ' without walls,

[5] Arthur Mitchell, *The Past in the Present* (Edinburgh, 1880), p. 28. [See also ANTIQUITY, 1939, XII, 280–2.—E.C.C.].

[6] Cf. Norwegian experiment in Johs. Bøe, *Jernalderens Keramik i Norge* (Bergen, 1931), p. 210.

excavated in the ground like a cellar, the sides and top of the entrance being of brickwork. In addition, the building is most frequently constructed of inflammable materials, since the roof should preferably be porous without being leaky. Across the pit in the earth are laid loose poles on which the pots are stacked. If the kiln is wet, a fire is lighted in it a couple of days in advance, and while the pots are being put into the kiln the greatest care is taken that they should not be exposed to moisture or draught. The smoking should take place extremely slowly ; therefore only a single piece of peat is kindled to begin with. The heather-surface of the peat is always laid downwards so that the fire may not break into bright flame. Gradually more peats are added, and when all steam has been got rid of, the last aperture in the building is closed, viz., the little smoke-hole at the top of the picture (FIG. 6). When the pots are taken out of the smoke-kiln at the end of about four days, they have a pretty coffee-brown colour. The tarry component of the peat-smoke has sealed all the pores, so that after having been fired the pots are capable of holding liquids, though the temperature of the firing does not itself make the walls of the vessels impervious ; this will only take place at over 800 degrees centigrade.

The firing is done in a flat field, and preferably in still, dry weather. In former times the vessels were stacked on a layer of peat and straw, in groups of three inside one another, the larger ones covering the smaller. At the present time, since large jars are not produced, iron coverings are used, such as oil-drums sawn across. While being taken from the smoke-kiln to the firing-place the pots must not be allowed to cool off, or else they will draw moisture out of the air. When they are put under the covers, peats are stacked over them, and the fire is lit (FIG. 7).

Fire is applied evenly all over by means of a tuft of straw or heather. The pots will not stand great heat, especially at the beginning, and the fire must not be allowed to burn brightly anywhere; at the same time it must be protected from cooling as a result of a shower of rain. According to investigations made by the National Museum, the temperature in the ' kiln ' is about 500 degrees centigrade and never reaches 600 degrees. After two to four hours the pots are fired, and the ' kiln ' is allowed to lie for half a day, a watch being kept to see that the ashes do not slip from the edges of the covers. If this should happen, the fire burns up brightly on the ground-layer underneath, and the pots are spoilt. Even after the ashes on the covers have been removed so

that the pots can become cool, the edge must be covered with earth or ashes so that the ground-layer may not catch fire. After two or three hours cooling the completed pots are brought out. They are now dead-black, and the parts that have been treated with the smooth flint are a shiny black because the surface here is extremely smooth. The black colour is due—as was long ago pointed out by Franchet[7]—to the exclusion of air ; in other words, the vessels are fired in a reducing flame, whereas an oxidizing flame produces red wares. For the same reason the clay covers of former times were always grey-black and more or less flamed. They could not be entirely protected from oxidation.

No complete investigation has yet been undertaken of Danish black pottery from the beginning of historical times to the present day. The medieval wares in particular need thorough study, since there are a good many definite fixed points available, provided by pots found containing coins. In view of the considerable export of Jutland pottery which took place particularly in the 18th century, it is here that one should be able to see some typical representatives of the products of later times. Most of the exported Jutland pots, including a couple of specimens in English museums, come from the Varde district, northeast of Esbjerg. They are characterized, as FIGS. 8–10 show, by ribbon-shaped lugs which are most frequently set vertically. Horizontal lugs also occur, but are not as a rule ribbon-shaped. The feet are always prismatic in section, and one of them is generally placed immediately below one of the lugs. On the sides there is usually an ornament of bright ripple-marks in rather loose and easy style. FIG. 8 shows quite a small pot that has been used for cooking sauce, etc., and FIG. 9 a large pot which could be used for cooking, but was also frequently used for storing urine which was employed in dyeing. FIG. 10 shows a shallow pot which may occur without feet and sometimes has only one lug ; it was also made in the Varde district. Finally a number of coffee-pots were produced in the same region (FIG. 11), but these were no doubt seldom exported.

The north Jutland pottery types are easily distinguished from those of the southwest. The feet are generally rounded cones, and in particular the lugs are different. FIG. 12 shows a pot from northwest Jutland, dating from the end of the 18th century. It is prettily ornamented by rubbing with the afore-mentioned smooth flint. The rim is tongued and the lugs are square in section. More often, however, the north

[7] L. Franchet, *Céramique Primitive* (Paris, 1911), 20 ff.

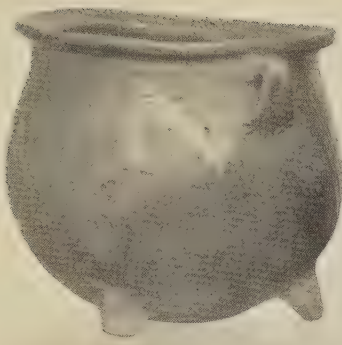
PLATE I

FIG. 1 (upper). THE RIM IS ROUGHED OUT, AND THE INTERIOR HOLLOWED OUT
FIG. 2 (lower). THE SHAPING-CLOTH IS LAID OVER THE RIM (*see* p. 149)

facing p. 152

FIG. 3 (upper). THE RIM IS SHAPED
FIG. 4 (middle). THE BODY OF THE POT IS PRESSED OUT WITH THE HANDS
FIG. 5 (lower). A LUG IS PUT ON. (*See* p. 149)

FIG. 6 (upper). THE POTS ARE TAKEN OUT OF THE SMOKE-KILN (*see* p. 150)
FIG. 7 (lower). THE POTS ARE FIRED UNDER BURNING PEATS (*see* p. 151)



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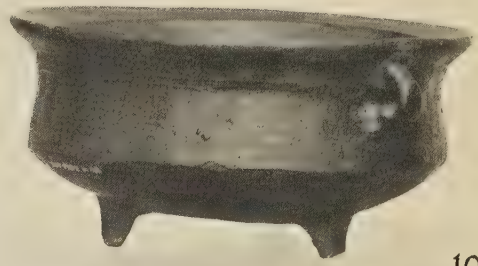

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FIG. 8. SMALL POT, Varde district. (Figs. 8–12, *see* p. 152)
FIG. 9. LARGE COOKING-POT, Varde district
FIG. 10. SHALLOW POT, OFTEN MADE WITHOUT FEET, Varde district
FIG. 11. COFFEE-POT WITH GEOMETRIC DECORATION, Varde district
FIG. 12. DECORATION BY BURNISHING WITH A FLINT (NW. Jutland)
FIG. 13. CONCENTRIC FURROWS ON NECK (East Jutland)

Jutland jars appeared with very large lugs—a legacy from the Middle Ages. Fig. 13 shows a pot from the region between Aarhus and Viborg—an eastern type. It is specially remarkable for the concentric furrows on the neck, which feature is also derived from medieval forms. The range of forms of the Jutland pots is, however, much larger than the examples given here would suggest.

In the hey-day of the production of Jutland pottery, which seems to have coincided with the times of poverty in the 18th and early 19th centuries, these wares were exported by ship and horse to the whole of northern Europe, especially over an area extending from Holland and Norway to Livonia and far down into Germany—as far as Berlin, Dresden and Vienna. The enormous improvement which took place in Danish agriculture in the last half of the 19th century, and the extensive ploughing and planting which after the loss of the Duchy of Slesvig in 1864 reduced the area of the Jutland moors to a minimum, were followed by the decline of the pottery industry. The economic revival made proper farming profitable, and brought about stagnation and retrogression in the old sources of extra profit hitherto enjoyed by the poor moorland areas, viz., the making of pottery and wool-work. The Jutland pottery industry received its death-blow with the general introduction of the kitchen-range, together with the spread of new and more efficient fuels. Also the centralizing and rationalizing of the milk industry and of the production of butter, through the setting-up of cooperative dairies since the 1880's, all went to make the manufacture of Jutland pottery superfluous. This thousand-year-old industry was threatened with extinction.

In the years round about 1910 interest was awakened once again in this venerable national pottery. A market was created for its production through exhibitions round about the country, and today it is no longer an object of contempt as it was for the last century and a half. Now it is a rare and much-sought-after object of domestic industry, the producers of which cannot nearly manage to satisfy the demand. It has also aroused European interest because the making of pottery without a wheel is without doubt extinct, apart from certain districts in Greater Russia and perhaps in White Russia. Thus this home-industry of Jutland provides the best opportunity for studying methods which resemble those used in the primitive pot-making of prehistoric and medieval times, and for this reason it deserves to be known also by antiquaries in other European countries.

Dead or Alive?

by W. H. Riddell

> 'When two men cannot agree over the price of an onion who shall decide what happened in the time of Yu '.—Ernest Bramah, *Kai Lung's Golden Hours.*

IN 'A New View of the Western European Group of Quaternary Cave Art' (published in the Prehistoric Society's Proceedings[1]), Mr P. A. Leason has lobbed a bomb into the complacency of those of us who admire the incomparable vivacity with which the old hunter-artists depicted the big game they hunted for food.

Since Mr Leason is himself an artist, his novel and almost revolutionary views deserve careful attention, and whether we agree with them or not we can still be grateful to him. At least he has made us think.

Mr Leason's thesis, if I understand it aright, is shortly as follows. Although the artists of the Old Stone Age set out with the deliberate intention of depicting living animals either at rest or in action, they availed themselves for this purpose of dead models posed on the ground more or less in the attitudes they wished to portray. Furthermore their scrupulous fidelity to these models was such that, in their finished works, the model's deadness, to the seeing eye of an artist like Mr Leason, 'sticks out a mile'. At first, indeed, Mr Leason was actually misled into thinking that all cave-drawings were intended to depict dead animals.

In the course of his carefully wrought argument he analyses a number of the best known palaeolithic drawings. Considering them as representations of living animals he points out certain faults which many of them have in common, in particular the surprising frequency with which feet that should stand foresquare on the ground are given a 'tiptoe' position; the many occurrences of a hoof or paw drawn full-face though attached to an animal in profile; the absence of any sign of weight bearing on the limbs in the general modelling of a beast's body; and the placing of the legs, in some instances, in such a position that they could not keep the beast erect. He draws attention also to protruding tongues which resemble more those of slaughtered beasts than the live tongues of, say, a 'bellowing' bison or a 'belling' red

[1] 1939, vol. v, pp. 51–60.

deer stag ; and to tails whose carriage is unnatural upon a living animal, though possible and even probable on a dead one lying flat.

Mr Leason reinforces this formidable indictment with reproductions of Stone-Age drawings showing the faults in question, and he adds his own photographs and outline drawings of animals lying dead to illustrate his contention that all these faults could readily be derived from dead models posed, so to speak, beneath the artist's eye.

In addition he shows that the nearer feet of an animal standing in profile are often drawn at a higher level than the further feet, which is precisely the opposite way we should draw them today. From this and other incidents of a like nature, such as the prominence often given to a beast's underside and lower jaw, he draws the justifiable conclusion that the painter's viewpoint was on a lower level than the animal's feet—an event little likely to happen unless he was copying from a dead model on the ground before him.[2]

Now is it not possible that Mr Leason is attributing to these ancient hunters a degree of sophistication to which they had not, in fact, attained, and that most if not all the faults he finds admit of a simpler, more ' artless ' explanation.

Living and truthful as the best works of these ancient artists seem at first sight, it is difficult for us to credit such simple folk with the miraculously modern behaviour which an elaborate employment of models involves.

Let us picture to ourselves the sort of men they were and the kind of life they led. They had few possessions—no more than they themselves could carry, and little more than the tools and weapons of their hunting craft. They were completely self-sufficing : whatever they had they made for themselves, for they lived thousands of years before the first emporium. During the warmer months they were incessantly on the move—as hunters must be—following from spring to autumn the seasonal movements of the game, which, in those days, as in the Africa of yesterday, were unconstrained by fence or civilization. They spent their days watching the game-herds, unconsciously learning their habits and the surest means to approach and attack them. Starvation was the ever-ready punishment for those who failed to learn. Winter's approach intensified their labour. In addition to daily needs they had to lay up sufficient meat and fish (this was the date salmon spawned

[2] A summary is always unfair to an author's views. I have done my best with the space at my disposal, but I would beg readers to study Mr Leason's own words and illustrations in the Prehistoric Society's Proceedings. They are of great interest.

in the shallows) to carry them through the bitter months of the ' Glacial ' winter. Winter itself brought a relenting. Deep snow made hunting practically impossible[3] while unbroken frost gave them a natural cold storage for their hoard of food. It was only during this season that they resorted to the shelter of the caves and only then that the artists among them found leisure and opportunity to work.

The drawings themselves are our best guide to the men who made them. Perhaps the most immediately noticeable thing about them is their resemblance both in character and simplicity to the untutored and spontaneous drawings of a child.

Except that their minds were coloured by the incalculable complexity of sexual maturity, one might say that the men who did these drawings possessed the mental calibre of modern children between the ages of 9 and 12—the private school age of our English young.

In size of brain Cro-Magnon man fully equalled modern man ; so may an intelligent native of any African hunting tribe today. But in capacity of apprehension the African native lags behind the white man and so, one imagines, did Palaeolithic man with 150 less centuries of history behind him. By crediting the latter, when full grown, with a mind whose grasp resembles that of a modern intelligent boy of, say, 11 or 12, we explain much that is otherwise obscure.

This is, *par excellence*, the hunting age, the age of catapult and snare, the age of bird's-nesting and that modern aberration of the hunting instinct, the collection of trifles like stamps or butterflies. It is at this age that a passionate and inquiring curiosity into external things first awakes, and when an unconscious and uncontrollable urge to imitation works at full force. The latter urge is the unconsidered parent of the Arts.

The spontaneous drawings of a boy have for subjects only those things that interest him deeply—his home, parents, a horse, or some particular pet. He treats his choice, just as the old cave-artists treated their choice, which was big game, with the utmost degree of liveliness and the smallest expenditure of executive labour. Even so inanimate

[3] There may have been some slight winter activity. Professor Sollas in his *Ancient Hunters* (fig. 318) reproduces an engraving on a bone-pendant from St. Marcel which looks very like a sledge. There is however *no* evidence that either dogs or reindeer had yet been broken to harness. Also we might, very doubtfully, guess that the two diamond-shaped objects above the Lorthet group of deer are snowshoes. This is clearly a late autumn scene. The conjunction of fully antlered stags with water full of salmon indicates as much. It is just possible these stags were meant to be swimming a river : but it would be too fanciful to regard the two snowshoes (?) as a date—Snowshoe Time, i.e. Beginning of Winter.

a thing as a house he enlivens by the clouds of smoke which issue from its chimneys. He chooses invariably a profile position for any animal he draws. It is the only one he can manage with confidence ; for he scorns any use of a model, finding its mass of complicated detail more a hindrance than a help. Is it not probable, nay certain, that the procedure of Stone-Age artists was the same ?

There is little evidence in ancient works of art, long posterior to cave-art, to show that models were in common use. Except for some remarkable portrait-statues of ' Old Kingdom ' date in Egypt we must await the Grand Century in Greece before we get convincing evidence of that. To this day Chinese and Japanese artists working in unbroken tradition of something like 2000 years never use models except for an occasional preliminary study ; they rely wholly on a highly trained memory for the production of their finished works.

Mr Leason himself hints at the difficulty of believing that the cave-artists of Western Europe thousands of years ago had so far anticipated modern methods that they habitually used models, and relied almost too slavishly on their help : and certainly it is not easy to believe it.

On the other hand it is by no means improbable—Mr Leason, indeed, has made out an almost unanswerable case for it—that *these old artists unconsciously allowed their visual impressions of their quarry as it lay dead, especially with regard to certain intimate details, to influence strongly their many, but less 'close-up', visual memories of the living beast.* So strongly did these 'close-up ' impressions of dead animals influence them that it ' shows through ' clearly in their work.

For this interesting and important discovery Mr Leason has earned the thanks and deserves the congratulations of all who have made Cave-art their study.

We must remember that these ancient hunters had no domestic animals. They had no chance to study at close quarters and at leisure the game they hunted daily . . . until it was dead. The only time they came in close contact with living game was towards the end of some long absorbing hunt. The scurry and excitement of the kill however gave them neither chance, time, nor inclination for the quiet and careful observation an artist needs. That opportunity came when the hunt was over and the quarry in hand, prior to its being cut up for food. This was the only moment the artist had to note such details, for example, as fetlocks and hoofs. In point of fact his best means for familiarizing himself with the latter came from his daily study of spoor—a subject to which I will return in a moment.

Those of us who have conscientiously studied wild game in the field know to our cost that, in spite of modern binoculars, those parts of a wild animal's anatomy least susceptible to study are its fetlocks and feet. They are rarely visible owing to the grass. Our best chance comes when the beast in question lifts its foot from the herbage in the act of walking. In that action the raised foot, be it noted, takes naturally a drooping or ' tiptoe ' position.

It is therefore no matter for surprise that the feet and legs of the cave-artists' big game are the parts over which he most often blunders. Often his boylike impatience with troublesome detail induces him to generalize the legs and leave out the feet altogether. You will find hardly a foot on any of the animals in the Spanish cave of Castillo which contains a number of good drawings. Anyone who cares to go through that invaluable little book of reference, Salomon Reinach's *Repertoire de l'Art Quaternaire*, will find the absence of feet one of the commoner traits of Palaeolithic Art. One example I will cite here for a double purpose,—an excellent but very primitive drawing of a bison—Aurignacian in date—at La Grèze on the Dordogne. Besides the entire absence of fetlocks and feet this drawing exemplifies another not uncommon trait. Though body and head are in strict profile the horns are drawn full-face. This form of error crops up continually in ancient art because it never occurred to the artists of those days to refer to a model, that being a thing which was never done. Egyptian Art is haunted by it. Dynasty after dynasty puts the same full-face eye into every human profile, the same full-face torso on to profile thighs and legs.

Mr Leason suggests that the presence of full-face hoofs upon a profile bison arose from the use of a dead recumbent model with an inturned leg ; and that the ' tip-toe ' position of the feet occurs because that is their normal position in an animal lying dead. Is it not simpler to account for both these errors by the supposition that the artist used no model at all ? He was relying on a muddled memory in which dead and living animal poses played contradictory parts.

I imagine that this ' tip-toe ' position when combined with a full face aspect—a conjunction almost universal at Altamira—was forced upon the artist, much as a conjuror forces a card, by his mental picture of the animal's footprints on the ground, in other words, its spoor. For him this was a far more vivid and familiar picture than the actual feet themselves.

If you were to wipe out the bisons on Altamira's ceiling, leaving only their feet, any unprejudiced observer (but for choice a professional

hunter) would at once recognize these detached and casual feet as no bad representations of a bison's spoor.

Oddly enough this 'tip-toe' position is astonishingly effective. It helps to give an air of expectancy to the animals on which it occurs. You get the impression that they are metaphorically as well as actually 'on their toes'—a condition of life in which all wild animals live.

Mr Leason will be the first to agree that the majority of cave-paintings could not have been done direct from models. To drag any model, let alone the vast carcase of a bison, to the places where many of these drawings occur was a physical impossibility. Apart from insuperable obstacles the labour would be prohibitive, as anyone who has visited the caves will be aware. You could hardly get a roe-deer through the 'Rubicon' passage at Font-de-Gaume, and to reach the two famous clay-models of bisons at Tuc d'Audoubert you must take a boat or swim.

The alternative, which, if I understand him correctly, Mr Leason advocates, is that the cavemen deliberately made studies from models outside, scratching them with a flint-graver on any handy object, with the intention of transferring them to the cave-wall later. A number of small palaeolithic engravings might have served this purpose. There is one in the British Museum from Bruniquel, for example, which I have picked out, I fear a little mischievously, because the drawing of the bison's hocks, knees, fetlocks and hoofs is impeccably correct though the drawing as a whole is a poor one. But there is better evidence than that. Upon a shoulder-blade found at Altamira the head of a red deer hind is scratched. Ten miles away at Castillo there is an engraving on the cave-wall of the head of a red deer hind precisely similar in pose, style and technique. Mr Parkyn in his *Prehistoric Art*, p. 121, reproduces the Abbé Breuil's careful copies of these two side by side. Willing as I am to agree that the same artist did both, the coincidence does not convince me that he used one as a study for the other or that in those 'high and far off days' the making of preliminary studies, any more than the regular employment of specially posed dead models, was a common custom.[4]

We must turn now to other points in Mr Leason's indictment,

[4] Mr Leason points out that the backward-turned head of the rear stag in the Lorthet Group could be arranged on the ground for model purposes by using the antlers as a prop and he gives a photograph of a dead sambur so posed. This is true enough; but the backward-turned head of the equally famous recumbent bison at Altamira could not be arranged this way. A bison's horns point forwards.

namely the protruding tongues of supposedly ' bellowing ' beasts and the frequently unnatural pose of a tail. The former might be more readily accounted for by careless drawing than by slavish reliance on a dead model. It might even be a mischievous addition by a later hand—
—the kind of boyish hand that decorates the pretty lady on the soap-poster in tube-stations with a sergeant-major's moustache ; but I am inclined to agree with Mr Leason that the memory in the artist's mind of many slaughtered beasts with their tongues out did in fact strongly influence his work. In the matter of the tails however I regret to find myself in complete disagreement with Mr Leason.

One of the minor problems of an animal-painter is to endow his subjects with tails that are at the same time natural and significant : an animal's tail being one of its most potent means of expression. In the wholly dumb giraffe it is almost the only one he has, and very eloquent it is. The cave-artist, in his best works, upon which Mr Leason—very fairly—bases his whole indictment, takes this obstacle in his stride. His drawings, reproduced in Mr Leason's paper, proclaim his success better than words of mine. Let us, however, run through a few of them, giving them (in brackets) the reference numbers under which they there appear.

The pendant tail of the woolly rhinoceros of Font-de-Gaume (1) aptly completes the placidity of the whole pose. This admirable early drawing might have been copied from a lethargic white rhino in the Lado Enclave. In (8)—an old bull-bison about to charge, which is perhaps the best of all the Altamira bisons—the slowly rising tail speaks of his slowly rising anger. In the galloping wild boar of Altamira (10), which I should prefer to describe as a leaping boar, the erect tail is a typical signal-flag of sudden alarm. The extended tail or scut of the galloping St. Marcel reindeer (25) plays its small part in the suggestion of speed. The rigidly still tails of the two aurochs of Teyjat (34 and 35), combined with their general pose, express watchful alertness. In the justly famous charging mammoth of La Madeleine (36) the flourish of the raised tail is an accurate index of his fury. Finally the raised scut, together with the stamping off-hind foot of the grazing reindeer of Thayngen (44), rounds off a faithful picture of a beast plagued by flies or midges. On any hot summer's day you may see its parallel among the deer in Richmond Park.

Now in these examples—all of them masterpieces of palaeolithic art—the tail, far from playing an inert role, acts as a definite clue to the artist's intention,—as it were the keynote of his composition.

There is yet another point in Mr Leason's argument which is susceptible to an explanation other than the one he favours. The fact that the further two feet of a beast in profile are frequently drawn at a lower level than the nearer two, convinces him that the artist was sketching a dead animal with its feet towards him, for thus only could this error arise. There may be a simpler psychological solution. It may be a topsyturvy experiment in perspective on the part of an artist whose knowledge of perspective was nil.

Picture for a moment the Altamira artist at work on his big red deer hind, which is a good example of this particular error. He would first draw the head and body. Then, standing, or rather crouching (for the ceiling is low) immediately below what he had drawn, he would proceed with the legs and feet beginning quite naturally with the nearer ones. When he got to the further feet he would instinctively reason something like this : ' In nature these two feet are further off, so I must place them further off '. As a natural consequence he draws them further away than the two nearer feet *from where he himself is standing*, with the unfortunate result we see. That, I believe, is all there is to it.

The quite modern perspective notion that the flat surface on which an animal stands, when below eye-level, must slope upwards in a picture was far beyond the reach of these great artists of the dawn, as indeed it was beyond the reach of countless accomplished artists after them. Our modern pictorial perspective is merely one of a number of approximate methods for solving the difficulty of presenting in two dimensions the complicated events of three. The Stone-Age artist knew nothing of any of them and cared less. He gave no thought whatever to foreground, background or even the ground on which his animals stood. Mr Leason would persuade us he was old enough to know better ; I prefer to think he was much too young to care. Simple-minded hunter that he was it seemed to him of no importance that the legs of an animal should be so disposed as to support its weight. All he cared about was that they expressed his intention and looked more or less roughly right. The ' trotting ' boar of Altamira was one of his failures. He gave it, without success, as many legs as a spider and then gave it up. A surplus leg or two is a common feature in cave-art.

Who can fathom the minds of men who are so distant from us in thought, habit and time ? They may have considered it of no consequence that the animals they painted on the cave-walls appeared to be floating in mid-air. They may have meant them to do so, intending them to be no more than the ' baseless fabric of a vision ', spirit-shadows

of the big game they would hunt in the flesh after the long cold winter was over ; fondly believing that these painted images would help them to gain ' dominion over all the beasts of the field '.

One thing is sure. The caveman's knowledge of anatomy was more a butcher's knowledge than an artist's. He was entirely ignorant of what muscles were brought into play or prominence in order to overcome this or that force, but he could find his way blindfold to that part of any beast's anatomy which harboured the most succulent meat. The tenderness of a brisket or a ' Bath chap '—parts that he occasionally emphasizes in a drawing—held no mystery for him.

Mr Leason's careful comparison between the Stone-Age artist's drawings on the one hand and his own outline-drawings of dead animals on the other has had an unexpected result. His intention to show their similarity has only emphasized their startling difference. His dead animals look nothing else but dead—a tribute to the camera's fidelity. The caveman's drawings on the contrary look amazingly alive. Note the sweeping synthetic curves, tense as steel-springs under stress, with which they bring their beasts to life. How little they resemble the flaccid lines which render faithfully the deadness of Mr Leason's beasts. Even those animals in the caveman's drawings which are clearly intended to be wounded or falling—and there are many such—have about them a suggestion of tautness and resistance wholly alien to the limpness of a corpse.

The many inaccuracies of cave-art, which others besides Mr Leason have been quick to point out, fade into insignificance before the positive virtue of this living and vivid presentment. It comes from no model dead or alive. It emanates from an emotional vision—an intense visual memory—in the artist's mind, working down from his brain through arm and hand to the surface on which he works. He draws, it is true, as a child draws, with no regard for tedious and unnecessary detail but with a most anxious searching for that Something, known for more than a thousand years to Far Eastern artists as *Sei-do*, that is to say, Living Movement, the modern slang for which is ' Swing '.

NOTE :—Reproductions of the drawings referred to in this paper are accessible to English students of Quaternary Cave-Art in Baldwin Brown's *Art of the Cave Dwellers*, Spearing's *Childhood of Art*, Parkyn's *Prehistoric Art*, and Sollas's *Ancient Hunters*. Many of these illustrations are derived ultimately from the innumerable and scrupulously accurate copies made by that great French prehistorian M. L'Abbé Henri Breuil, to whom all students of this early and, at times, somewhat inaccessible Art owe an immense debt of gratitude.

From the Stone Age to the Motor Age

A Sketch of Norwegian Cultural History*

by A. W. Brøgger, Oslo University

UP to a century ago there still stood on the farm Li in Østre Gausdal, near Lifossen, Gausa, a stone bearing this runic inscription from the days of Olaf the Holy : ' Eiliv Elg carried fish in Rausjøen '.

In ancient times, as in our own, to carry fish meant to transfer fry in the lakes and waters—to stock as ova and allow to spawn. All fish in our mountain tarns has been carried up by folk in this manner ; the Gausdal inscription has commemorized this remarkable and, technically, very difficult chapter in the conquest and cultivation of the country. Eilif is merely one of a thousand and he had this inscription incised not as any memorial, nor in self-glorification, but to proclaim juridically that now the fishing rights of Rausjøen were his.

Very few of those who in the course of thousands of years have built and settled our country and who have become the possessors of land and of fishing waters, of forest and fell, islands or a stretch of strand, have left behind them title-deeds of such transient nature as this. Unique among them all is the famous *Kårstad* inscription from Nordfjord, with these simple, remarkable words : ' I, the stranger, the man from Bavaria ' telling of a settler from Central Europe nearly two thousand years ago who took up property in Nordfjord.

During the Great Migratory Period, the Viking Age and in Medieval Times, our own countrymen on an infrequent occasion also registered their claim in a more permanent form, as is seen by the runic inscription on the Sandavåg Stone, Faroe Islands, where stands ' Torkel Ånondarson austmadr af Rogalande bygde thenna stad fyrst '.

For that matter, all the Norwegian, Swedish, Russian or other hunters and mining prospectors, who were on Spitzbergen last century, did nothing different when nailing a few packing boards to a wooden stake, thereby notifying a claim for future working.

*Reprinted from Saertrykk av Norsk Geografisk Tidsskrift, vol. VII, 1939, by permission of Dr Brøgger, of Oslo University, and the publishers.

But otherwise the great thousand year-old saga of the settlers still lies hidden in so many varied ways ; it is only now that we are about to discover and record it, but we have still far to travel to collect everything in one single comprehensive survey from the times of antiquity down to our own—or, to express it by a slogan : *From the Stone Age to the Motor Age.*

There were always some who asked. When going about the farm, when walking behind the plough, when sowing corn or cutting the grass, folk wondered who it was who first cleared the acres and the holdings ; who found the outfields and farmed them ; who made the animal graves and traps among the mountains and on the slopes. And they must also have wondered in this way when, with their oars across the thwarts, they sat in their boats out on the wide fishing grounds. Who was it who found these fishing banks ? Who was it who protected the haunts of the seal and knew the whale bays along the coast, north and west ?

' Who lived here in the land first '? asks King Olav Tryggvason when sailing southward along the coast. A man stands on a rock and shouts to be taken off, they steer inshore and get him on board, the king being happy at talking to the man for he knows so much of the olden times, says the saga. The man goes on to tell of ogres and giants who once were the first to live and rule in the land alone ; then a deadly disease fell among them and they died, and thereupon came folk from the countries to the east and began to build.

This old man undoubtedly must have known a great deal about the ancient times and the people of the land—more than we believe, because it has been lost. Did people know that once there had been a Stone Age and a Bronze Age in the country ? Certainly they did ! We have, in fact, a relic in a living name. In 1907, on the farm Viste near Stavanger, was made one of the most remarkable Stone Age finds —a habitation of a hunting and catching folk of some six or seven thousand years ago. It happens that in the very farm name of Viste there reposes a—let us express it—purely archaeological observation. I refer here to the well-known place in Are Frode's *Islendingabok* where he speaks of Eirik Raude's voyage of discovery to Greenland. When journeying around, it says, they came upon *mannavistir* both in the east and west of the country ; they also found boat remnants and stone implements (' Steinsmidi ') of a people who had travelled in the country long before the arrival of Eirik and his men. Are Frode uses the word *vistir* here as we do in the name of the Norwegian farm where

the Stone Age habitation was found, as the homestead of a Stone Age people. He and his contemporaries used it to distinguish between *bygd* (district) and *bygdarmenn* (men of the district). In the story of Sunniva the Holy and her people landed on Selja, the saga also distinguishes between bygdarmenn and those who live by hunting and catching and keep to the old mannavistir.

Relics of the Stone Age people have therefore also been evident enough to those who, in a much later age, cleared and cultivated the country. They did not at all view the Stone Age people as being somewhat more primitive—on the contrary, they took up their stone axes and thought that ogres and giants must have handled such objects. They stood wondering, very much like ourselves, although much nearer —we who through the technical progress of our age have lost all comprehension of what ancient culture really was. Once they even met a Stone Age people, the meeting being narrated in a manner more living and real than any ethnographic description of several centuries later. It was when the Norwegian Greenlanders on their great colonizing expedition to North America, in the time of Olaf the Holy (995–1030), encountered some Indians. They themselves had the best iron weapons and requisites of the age ; the Indians, stone arrows and axes. One of the Norwegians fell in the battle, and the woman Freydis, wandering in the woods, sees him lying there, a stone axe in his head. Later, the Indians found the body and saw an iron axe alongside. This was something they had never seen before so they picked it up, says the saga, and tried it on a tree. They all took a turn and considered it bit excellently. Later, however, one of them picked it up and struck with it against a rock ; the axe was shattered, whereupon the man, finding it could not withstand stone, thought it of little use and threw it aside.

Some fragments of this saga from the Stone to the Motor Age have been found from time to time. Its lines may in part be traced here and there if we search for them in the very foundation of the folk-culture throughout these thousands of years—the working day and livelihood such as evolved from all the available potentialities that were to be found ; the conditions of life the country itself has given from the very earliest times until today. The great main considerations are still somewhat the same today as they were 6000 to 8000 years ago. It is technique which is different, likewise the human material that has created the rhythm in the multi-thousand year-old saga. What is cause and what is effect, need not be entered upon here—that

belongs to another idea-association. I would merely say in this connexion that I have the greatest suspicion of the generally accepted view of this so-called ' development ' being a wholly uninterrupted and logical progression from antiquity down to today—of the so-called primitive Stone Age culture as compared to that of the Bronze and Iron Age ; of the stereotyped belief in a steadily increasing development ; in a constantly increasing curve where each phase merely collects in order to hand over to the final perfection of our own times, the whole of a kind of preparatory process in order to produce our modern age. The great and new contribution of archaeology, not least owing to the wide dimensions with which it can operate, is just the being able to show that the course has been something quite different —large, long, ups and downs with cause and effect still little known.

To be able to approach any understanding at all of the culture of antiquity, it is absolutely necessary to begin with what we know today —to know the elements in the peasant culture still found in Norway and Sweden some 50 to 100 years ago ; to know something of life along the coast and at sea, in the forests and amid the mountains, on the land, the fields, the pastures, the hinterland and the mountain farms. Without knowing something of this, one will never attain to the heart of anything comprised within the ancient culture.

Hunting, Catching and Farming

The clearest picture of the oldest culture in Norway is given in the ancient hunting and catching upon which it existed. The archaeological sources, the habitation-finds, revealed by our researches during the most recent generations, tell us everything about all this in a most animated manner; how the utensil-milieu, and the culture of work as a whole, is based upon the annual catch as in all ages of peasant culture. Besides the prodigiously important material provided by the habitation-finds, we have also now re-discovered the illustrations of the hunting culture of this old livelihood—the rock-carvings, the wonderful pictorial material of the culture of an entire epoch. Both from these carvings and from the habitation-finds we learn the fundamental features of the ancient hunting culture. It assumed permanent, definite forms very early. Two kinds of animal dominated this annual culture, the stag and the seal. Both are gregarious and, from an economic point of view, represent large capital resources ; there must be added to them, in East Norway the elk, in North Norway the reindeer, both providing not only food—winter supplies—and clothing,

but also sources of raw material for utensils of every kind (horn, bone and sinews).

The great and fundamental trend of conservatism which has characterized the Norwegian catching and hunting along the coasts and out at sea, in the forests and on the fells, rests today, and did so thousands of years ago, firmly and broadly upon the all-prevailing rule of order in the animal world upon which our catching and hunting culture is nourished. Looking for merely the main sources, it is enough to remember fish—the cod which at the same periods within quite small limitations, returns every year to spawn on the very same banks and coasts. Or of the salmon, which, after a stay of many years far out in the Atlantic on the edges of the mighty deeps, migrates back along the thousands of miles to return not only to the very same rivers in Norway, but to the very same pools in the river where born. Or of the marine birds which every year almost to the day, return to the haunts where hatched, there to breed as birds have done since time immemorial. Or of the seal which with the most reliable regularity each year at the same time, generation after generation, re-visits the same skerries to give birth to young. Or of the whale which, during its migrations, for some days each year at definite times, seeks the same bays and sounds like countless of its kind before. Or of the stag which unfailingly during the same weeks swims the same fjords and channels, like its forefathers have done throughout all time on their annual autumn journeys to the islands of the west coast.

It is conformity to law that creates the rhythm in the life of hunting culture which divides the year into the working seasons of the fisherman and the huntsman, the catching and the chase, the utilization and conserving of the winter supply. It is exactly the same rotation of nature that creates the rhythm in the life of the agriculturist —the nature that awakens, the earth to be ploughed, and thereafter the season of sowing, growing and ripening.

Even today the rhythm in hunting culture is a deep tone in the life of the Norwegian people, sounding deepest in the gigantic whaling carried on in Antarctic waters.

During the first few thousand years of the settlement of the country, the people lived a hunting and catching culture pure and simple, without knowledge of any other domestic animal than the dog. The first innovation and change came when domestic animals and the cultivation of corn became known in the Scandinavian countries some 4 to 5 thousand years ago ; it came borne upon the waves from the

south, new civilizations and new people. Beyond mentioning one fundamental factor, we need not now discuss the forms development took. In habitation-finds of the Later Stone Age, the Bronze Age and the Iron Age, one trait is found repeatedly, namely, there is never any question of a pure peasant culture or of a pure hunting and catching culture, but only of a combination of the two. There are just as many catchers and hunters keeping cows and other domesticated animals and cultivating a little corn, as there are farmers carrying on seasonal fishing. This form of life is natural along the Norwegian coast, and it is this peculiar mixture of these two fundamental elements which shapes the Norwegian peasant culture of antiquity and which, even today, is constructive in the culture of the Motor Age. To mention examples: the peasant aristocracy of North Norway in Viking times, which for more than a century was a forcible factor against the sovereign power, was based upon major farming with corn, cattle and smaller animals besides fishing and catching (seals, marine birds, big game) around the extensive haunts of Nordland. Or, take a picture of modern times: the whaling men operating in the southern seas are not professional, industrial labourers, but Vestfold country youths having small-holdings or (as exceptions) larger farms as their economic background; and one of the most difficult problems in present social policy is just how to find in the major fisheries the harmonic balance between the fisherman as a fisherman on one hand, and the fisherman as a farmer on the other. Most fishermen of Lofoten, Finnmark, Helgeland and Møre are really peasants linked to, true enough, a primitive agriculture with cattle and smaller animals, natural pastures and land, together with a little cultivation of corn.

From the series of archaeological finds we are able to recreate pictures of the oldest form of peasant culture which, in Norway, from the very beginning has preponderatingly been linked to the coast, right from 3000 B.C. Livelihood was then based upon precisely the same possibilities as possessed by the coastal inhabitants of Norway today. The available patches of ground were taken, grain (barley and oats) was sown, domesticated animals were kept—cows, sheep and pigs, which, at all events in West Norway, could manage for themselves out of doors for the greater part of the year. Grazing was to be had everywhere on the islands, holms and plains, and cattle were then, on the whole, really able to maintain themselves. During the Stone and Bronze Ages it was hardly possible to do much with the winter feeding of cattle throughout large areas of the country, and farming

FIG. 2. LOPPING KNIVES FROM GRAVES IN NORWAY (*see* p. 171)

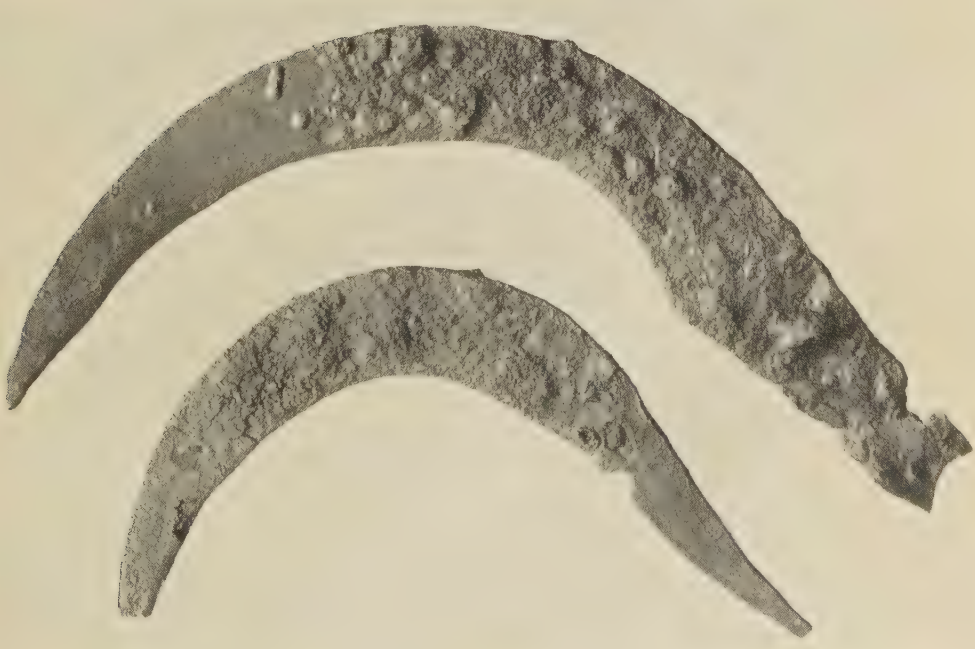


FIG. 1. IRON AGE REAPING HOOKS, NORWAY (*see* p. 171)

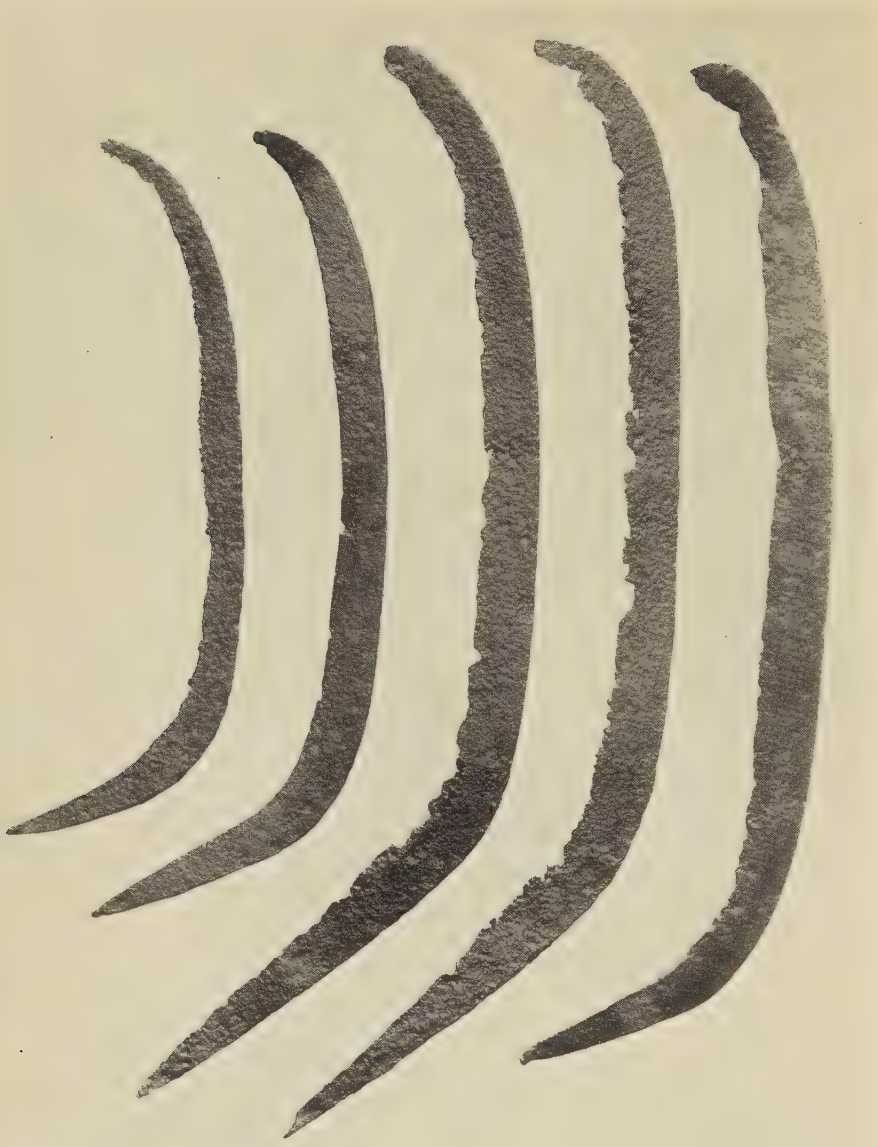


FIG. 3. VIKING AGE IRON SCYTHES, NORWAY (*see* p. 171)

thereupon became a gigantic extensive utilization of every possibility, its main principle being to reap as richly as possible of everything nature had to give without making any particular return ; consequently, a working method bound to a constant seasonal change evolves—hunting at due times, the cultivation of grain and the care of cattle at others. At places, the actual production of raw material has also played an appreciable part—the manufacture of stone utensils. We have discovered in the west of Norway some of the large centres where a definite type of rock (the hard green rock on Espevær), has been searched for, the labour involving seasonal working with as much stone as possible being cut at a time and blocks of raw material being carried off to the dwelling places.

This is the economic foundation of the Stone and Bronze Ages in Norway. Its expansion possibilities have been large, in fact, very large, and for some centuries created quite a rich culture such as found expression in the huge burial cairns along the Norwegian coast ; similarly on Lista, Jæren, Karmøy and Møre in the mighty tumuli and in the rich rock-carving provinces in Østfold, Båhuslen and Trøndelag.

With the Iron Age came the first important changes in this hunting-catching-agrarian culture, but cause and effect may still be discussed. Some of the factors which have been of significance are known, but considerable difference of opinion exists in assigning the value to be put to each.

Complete agreement, however, seems to exist with regard to what is termed the change in climate. Rutger Sernander was the first to prove it, and all later investigations of the peat bogs of Ireland, the Orkneys, Scotland, Faroes, Iceland, Denmark, Norway and Sweden, have confirmed him in full. Rarely have the ideas and researches of a worker so withstood the critical test of a generation like those of Sernander have done. We changed from a continental type of weather to an Atlantic, with cyclonic formation, frequent variability and increase in the precipitation in accordance with the cyclone series. In Norway, this entailed an increase in the amount of water carried in the rivers and lakes, to larger surpluses in rainfall which led to the formation of glaciers in the mountains. All the large glaciers in Norway today, Svartisen, Jostedalsbreen, Hardangerjøklen and Folgefonna, are new formations of historic times ; they are not remnants of the Ice Age—far from it ! Originating in the Earlier Iron Age, they did not attain completion until the Viking Age and Medieval Times.

The cyclonic weather type did something more. It swept aside the shield of forest in West Norway which, since the Stone Age, had meant so much in folk-economy. All the skerries and islands of the west were deforested, while on the mountains, the tree-limit fell several hundred metres, on the Hardanger plateau, up to 400. The Stone and Bronze Age geography of Norway and that of the transition to the Iron Age, changed in a radical manner.

In the eastern areas of the north, this climatic change has perhaps meant somewhat sterner conditions but in Norway, particularly along the west coast, it has rather meant a change for the better. Along the entire west coast and on all the islands of the Norwegian Ocean, it created pasture of the finest and most luxuriant kind, and it is easily perceived, *inter alia*, that it leads to a unilateral cattle breeding culture and to an increase in the number of animals, both large and small.

Another factor of the greatest importance to Norwegian peasant culture was also entailed, namely, that more trouble was taken to provide winter fodder and suitable accommodation for the cattle.

From the mapping of our Iron Age finds, we may see how the trend of culture changes. Let me show such an interesting area like North Norway. We can see, for example, how the peasants settled on all the Lofoten and Vesterålen islands, whereas, throughout the whole of the Iron Age, no attempt was made to clear and settle around the heads of the fjords or in the valleys of North Norway. It is only with the technique and increase of population of our times that all these Nordland valleys have come within civilization. The cause of this particular domiciliation phenomenon is the luxuriant pasture of Lofoten and Vesterålen, and the mild winters which, in conjunction with the enormous natural catching and hunting resources of Nordland, created the peasant culture potentialities of the Iron Age. At first, fish was of absolutely no importance in this connexion and it only became so at a much later stage. The same state of affairs brought the islands of the western seas—the Orkneys, Shetlands, Faroes and Iceland—within the sphere of Norwegian economic interest.

Of course, iron itself played a principal part in the technical shaping of peasant culture. Its incorporation therein hardly took long the moment it was discovered that iron could be produced in the country itself from bog-ores and rock-species. What then happened is one of the most significant transformations throughout the whole of our ancient history : the ability to utilize native rock-species —slate, quartz, greenstone, flint—handed down through generations

yields to the far more pliable material, iron. But an altogether new technical training was required and once more the work of several generations was to be spent on the technical apparatus itself. It was not long before the home production of iron, the ancient *bondejernvinna*, became part of the work of the farm—seasonal labour—particularly in those parts of the country where access to the bog ores was best, a new cultural geography in Norway being created thereby of its own accord.

It is easy to determine the effect of this cultural change. Perhaps the most important step is the iron axe, which from the older Iron Age became the peasant's principal implement all down the ages and at times his chief weapon. In fact, it simply became a part of the mind of the Norwegian peasant for a period of at least fifteen hundred years. The part played by the iron axe in the cultural development of Norway can scarcely be valued sufficiently high. It is the first real weapon against the forest, not merely an implement to render it useful. Moreover, it became fundamental in respect of the Norwegian boat and of timber constructional work leading to churches and the wood architecture expressed in the building of dwellings and store-rooms.

And with the iron axe also came the colonization of the hinterland, the clearing and conquest of the inland parts of Norway.

A wealth of sepulchral and other finds of our Iron Age, enables us to trace development from one century to another. We can see how the great cultural work of farming deals with the various new problems as they arise and how they are solved. Three implements play the principal part: the foliage knife (sickle, FIG. 2) and the scythe are the two chief, and then the reaping or pruning hook (FIG. 1), which, however, did not attain the importance of its two fellows. The knife for lopping off foliage and branches is much older than iron. With foliage as fodder and the utilization of the natural pastures we are confronted by the oldest and most original characteristic feature of both Norwegian and Swedish peasant culture. In the form the knife acquired during the Iron Age, it is a typical Norwegian and Swedish implement, and partly known in Finland and the Baltic States.

Of still greater importance is the scythe (FIG. 3), known to us by reason of the thousand Iron Age finds. It is the scythe which is the great symbol of this agriculture, not the grain hook and still less the plough. The scythe and the foliage knife could preface the history of Norwegian farming. In Magnus Lagabøters law it says *å hoggva hey*—to cut hay. It is a late reminder of the ancient working

method of clipping the grass, using knife and hook. The history of the scythe, therefore, also becomes the history of a cultural fight, a growth in the development of the human being himself in Norway—from the crawling man with his flint knife or hook clipping the grass, to the upright mower swinging with his two arms and mowing it down in long sweeps. The development of the scythe completes a significant division in the history of agriculture. Behind it lies the emergence of the Norwegian farm, the social, economic and technical unit with the family as its active centre. The finds of antiquity show that it is primarily cattle-breeding that is fundamental and this quite agrees with the picture we obtain when reading the ancient laws. The documents and the atmosphere of the legal language reflect the lengthy development in the use of the scythe and the foliage knife. Cattle (cows and smaller animals, i.e., those termed *smale* in the west of the country, sheep and goats) become value-forming and community-creating factors—not corn growing, nor, usually, the chase, certain areas (the seal) excepted, notwithstanding the principal part this has played in farming down through the Iron Age and in historic times.

The Norway of the Western Seas

The great transformation of peasant culture which took place with the introduction of iron has not to the same degree transformed the chase. (Stone and iron arrows, fire-arms). In reality, this is not at all so dependent upon the question of stone or iron, but in one enormously important sphere, iron proved radically creative in its effect, namely, the Norwegian boat. We know little of the Norwegian boats of the Stone and Bronze Ages, but we do know that with the first Iron Age a new type of boat was evolved and led to the viking ships and all the numerous Norwegian boat-types along our coast which were to remain down to the middle of the 19th century. Iron also created plank work and its particular psychology. The boat, moreover, made possible that great era of our ancient culture which found expression in the viking period expansion across the seas and our maritime culture of the Middle Ages. The boat did not create this, but without the boat, nothing of this would have been possible.

In the slow development of the psychic attitude of generations to maritime life and the sea, enters a cultural-geographical consideration more fundamental than any other in Norway—' skjærgården '—the skerries. From very ancient times the skerries have been the playground of the individual and of the family during maritime upbringing ;

the skerries both educate and retard ; they are the cause of a deeply-grained trait in the industrial life and moulding of the people. The Jutlander, the Dutchman, and the Englishman, have the sea immediately outside the front door, whereas the Norwegian coastal peasant has the skerries as his castle and his strength.

The boat and the skerries together form the explanatory factor of the history relating to the Norwegian expansion which led to what one terms *Noregsveldet*—the realm of Norway.

In the chronicles of Norwegian and Icelandic discovery, three stages repeat themselves with absolute regularity. The first, given rather uniformly even in the original sagas :—a man at sea, driven westwards before the storm, sights land he has never seen before. This form of narration reappears in our history, in so much of what happens at sea. We read how, so the saga says, Nadodd the Viking desired to sail from Norway to the Faroes and becoming *sœhafi* (losing his way), got out of course and came upon Iceland. And so it is with them all. Then follows the second stage :—people want to travel to find this country, and fit out whole expeditions like Eirik Raude who spent three years in Greenland, one of the greatest and most remarkable stories of discovery in the whole history of Norway. Then, finally, the third stage, colonization itself.

In the course of less than 200 years, the Norway of the western seas achieves actuality. It is not a kingdom, it is rather a very diversified crowd of small Norwegian communities with very frequent, regular inter-communication along a line from South Norway, from the Sudreys (that is Outer Hebrides) and Ireland via the Orkneys which are the ancient Norwegian demesne, the Shetlands, the Faroes across to Iceland and Greenland. In the 13th century a good 200,000 Norwegians resided in this area, against only 300,000 in Norway itself.

In the Chronicle of Håkon and Inge is a short saga-like story of a smith who, during his wanderings, arrives at a small farm in Telemark. The smith is an Odin in disguise and in the conversation that ensues with the farmer he makes a reply touching upon much of the general truth of these things. ' I have now been long on ships ' says Odin ' I have to get accustomed to horseback again '. It is a piece of Norwegian history in a picture.

Expressed politically, it means that Norway gravitates away from the sea, the psychology becoming partly Scandinavian.

This whole phenomenon must have a background in a definite livelihood factor, and in this connexion I might mention that in the

13th and 14th centuries a colonization en masse took place in Norway —in Oppland, the Gudbrandsdalen and in eastern districts—characterized by the so-called *rud*-names of which we know more than 3000. Obviously, here is a lower class pushing itself forward, its members becoming landowners who, to a large degree, become responsible for the transfer eastwards of the interests of the royal power.

I cannot speak here and now of the whole of this comprehensive and important era of what really happened in the Norway of the 14th and 15th centuries—the period of depression—and I venture, therefore, to skip to the renascence in the 16th and 17th centuries.

Forests, Timber and Trade

The background of what was to come is entirely European. The first important revival, which came as early as in the 1500's, was due to a combination of factors, the chief being the Norwegian forests. About 1500, a discovery was made in Europe—some believe in Germany, others Holland—which came to have the greatest significance, namely, the water-saw, a water-driven, vertical saw for cutting tree trunks plank-wise. The water-saw, which is a direct descendant of the axe, found immediate employment and dissemination ; it characterizes a revolution in the history of forestry. It is not altogether certain, however, that it would have attained the importance it did if Western Europe at that time had not entered upon a boom period, first with the Dutch, then with the English.

You will remember the old saying that Amsterdam rests on timber from Norway. In this great period of growth among the North Sea communities, Norway with her forests and water-power became a kind of Canada vis-a-vis Dutch initiative. The water-saw arose in every single little rapid along the Norwegian coast and that which came consequently is, in all simplicity, a new formative phenomenon of considerable dimensions. The Norwegian community was quite unprepared for utilizing this and, above all, lacked ships and a trading fraternity. In the course of 100 to 150 years, however, Norway had both. Timber in the 17th and 18th centuries created the towns and loading ports of Norway and, during the same period, came the large immigration of foreign families who revivified certain sections of the people. The Dutch were the first of the most enterprising ones, then followed the English, Scotch, north Germans, and, not least, Holsteiners and southern Jutlanders. To begin with, the Dutch took over

both shipping and commerce—note, for example, that most of the maps of Norway in the 16th and 17th centuries are Dutch. They knew each harbour and creek from Båhuslen to North Norway. At first this new urge was of little importance where agrarian culture was concerned, but in time it became quite basic and it is hardly too much to say that herein lies the foundation of modern Norway.

It is not possible to include this exceptionally important material here—how it led to a new Norwegian maritime industry, to training in old but certainly forgotten attributes, to a new use of ancient instincts, to a re-discovery of the sea and the lands of the Norwegian Ocean. In many ways the 17th century is a new Norwegian viking period and one of the most interesting centuries of our history.

That which Norway had not possessed in the Middle Ages—an important commercial community—came with the great renascence in the 16th and 17th centuries. Of course, not merely immigrants were concerned, but Norwegians. The effect of all this revivification upon the old peasant culture is still only partially appreciated. On the whole, it continued entirely on the old basis of migratory times as a speculatively prodigal method of working, but with some changes and displacements primarily relating to a large increase in cattle-breeding and pasture. At the same time, the coming of the fire-arm and the introduction of mining in the 17th century, entailed considerable modification.

The Great Fisheries

The most important innovation of the 17th century, however, lay in the sphere of hunting and catching. It was during this particular century that the great fisheries along the coast from Møre to Nordland emerged and, contemporaneously, off Båhuslen. Whereas in East Norway it was timber alone that created an independent trading community and a new Norwegian shipping industry, in West Norway, also in the same years, it was fish-towns like Ålesund, Molde, Kristiansund and others being created by the fisheries of the 17th century.

It is a general misconception to believe that it was the wealth of the sea which caused our oldest forefathers to settle along our coasts. That is altogether wrong. So long as there was hunting and catching enough to be had ashore, and so long as there were seal in the sea, fish was more a secondary consideration. Naturally I am not speaking about domestic fishing from the door-step all along the Norwegian

coast—that is as old as the people in the country, but it is not fishing proper.

With us, the ancient fishing places are determined by landmarks. Taking, for example, a chart of the Møre coast, and looking at all the old landmarks, it will be found that most of them lie along the banks into which the large cod creeps to spawn. In other words, the ancients of their experience have done the charting with which modern fishing technique operates.

These landmarks, however, also mean that the old method could only be used off-shore for so far as mountains were visible. This limit may easily be found along the coast by comparing the chart sea-depths with the heights given on a land map. There are only two areas in the whole of Norway where these conditions are effectively fulfilled—Lofoten and the Møre coast where the 50–60 fathom curve of the bank, the depth of the fishing, approaches nearer to the coast than at any other place.

'It was in the year 1742' says Chr. Gran Molberg, an auditor, 'that I went out to see this fishing. I had six men in two large "fjøringsfar" boats. We sailed WNW from a promontory on Sunnmøre, rounded so far from shore that the terribly high peak called Romsdalshorn went so near under water that it did not show higher than the three legs of a gryte (cooking-pot). My mate therefore called the place Gryttingen på Store Eggen (the Cooking-Pot on the Large Bank) and said it was 16 miles from shore'.

It is the technical, scientific, maritime usage of the 19th century that has rendered the fisheries independent of the old working method and made it possible for everyone to be a fisherman. Another important factor of olden times is that the particular part of the coast lying between Statt and Lindesnes is the poorest in fish and the most difficult to fish.

Of the two large fisheries, Lofoten is of medieval origin. Møre, of course, is also old, but the rich fishing dates from the 17th century only. Two circumstances have promoted the fisheries—the discovery of the cod line and net on one hand, and the North Sea fishery of the Dutch on the other.

In the great conflict to which the cod line and net gave origin, we see a characteristic encounter between old and new, constantly repeated since in Norway. The hand line fishermen around Ålesund, in 1625, for example, complain that the use of the new line was destructive; the fish, they maintained, were scared away by all that was left rotting

on the lines. Moreover, they alleged, the line fishermen indulged in such an orgy of cursing, swearing and quarrelling that the fish were frightened off the shore!

The bank fishing gave rise to larger boats and better equipment; moreover, in the development which occurred in the fishing on the Møre coast, and in the considerable interplay of agriculture and fishing in the case of the same folk and families, lie the interesting and illuminating sources of a single chapter of Norwegian history. Of material there is plenty. The great question how far a fisherman can be a farmer arises repeatedly in the 17th and 18th centuries as a consequence of the development of the new fisheries. We have an excellent picture given in Chr. Molberg's delightful work on the fisheries of the 1770's where, after depicting the poor conditions of the Møre fishermen, their boats and primitive equipment, he writes:

'I wonder whether the life of a worthy, tax-paying peasant is of more value to the State than that it should be a sacrifice to the sea and be perpetually exposed to all the perils to which delinquents of other nations are condemned. Of all the other nations among whom I have travelled and those who make fishing their main business, I mean the Dutch, English and the French, I have never seen a single peasant used herefor unless the peasants themselves have made fishing their main livelihood and thus would hazard either welfare or life. Only the Norwegians are so rash, and of them the man from Sunnmøre, Romsdal, Nord Møre, Hittervær, is the worst'.

The further and principal development of the great Norwegian fisheries only comes with the science and technique of the 19th century.

Education and Science

In spite of all the numerous, new, significant contributions made by the 16th and 17th centuries, the major part of the Norwegian working-day life on land and sea remained, in reality, the same as it had been in Migratory Times, the Viking Age and the Middle Ages. The real renascence, the transformation to a modern Norway, came with clear lines of development, partly from the confluence of the ancient peasant culture with the new mercantile and marine culture, and partly from the initiative which found literary expression in the education of the 19th century, which is father to the scientific and technical substructure of the livelihood of the whole civilized world. Touching lightly, I shall try to indicate the theme running throughout this very obvious development.

To all the North Sea countries—Norway, Denmark, Holland, England and Scotland—the great centuries 1500 to 1700 represented a new maritime era, a Viking Age in a fresh form. And, of course, this New Period was followed by the theories and thoughts which always marshal to defend the currents of the times—in this case termed mercantilism, the governing ideas of which are sufficiently known.

Actually, the revival in agriculture also sprang from the merchant aristocracy. The soil suddenly became real, the decisive factor. But herein also lies the explanation why the so-called physiocratic school expresses such commonplace ideas. Literally speaking, mercantilism begins to work the soil, to flirt with it, and, consequently, there once more follows the traditionless, revolutionary-stamped physiocratic train of ideas.

Primitive magic held the ancient agriculture religiously slave-bound : it was in the lap of the gods. This has been the case from the commencement of our chronology right down to the 19th century when mercantilism entered with its rationalism and its education—the source of all modern times. Their prophets express themselves more punctiliously. The soil is the real and only source of nourishment says Quesnay in 1758. And amid all this commonplace neo-clearance stands that romantic genius, Rousseau, who, in spite of all contradictions of Voltaire and educationalists, says precisely the same but in a different manner. Let us return to nature say the physiocrats.

The truth in this respect is very interesting but the material is far too comprehensive for the inclusion of any but a few points. By reason of certain decisive technical improvements in production, the English iron industry entered upon a new phase in the 18th century. In the 1740's a Scot, James Smoll, feels his way experimentally until he produces a new, excellent little type of plough which was to become standardized for export to Norway. It was a strong and handy implement, eminently suitable for the Norwegian soil : it had a turned blade and was particularly good for slopes. It was the beginning of the modern method. All kinds of mowing machines, etc., were thereupon experimented with in England.

Or take such a little thing as the discovery in England in 1733 of the flying shuttle, a radical improvement in loom technique. Although Norway, the Faroes and Iceland had kept sheep as a principal source of livelihood right from the Migratory Times, the first real wool looms in Norway came only in the 18th century and then as a result of the English inventions. Or let us recall the English experiments with

artificial meadow plants, clover, timothy grass and raj grass. Or the potato, introduced into Norway about 1750, to contribute slowly to the transformation of agriculture ; it encountered enormous resistance from the farmers, and we meet again the arguments levelled against the net, the engine etc. More than a generation was required to get the potato thoroughly introduced and then it became a principal medium for regulating stocks.

We could mention innumerable other matters. For the first time in the 5000 year-old history of Norwegian agriculture, man himself goes out to help nature after having tortured it in almost every sphere without giving anything in return—the transition from the prodigality of a thousand years to real cultural usage. Coming externally are all the discoveries and improvements leading to the modern scientific technical reconstruction of livelihood which lays the foundation of the new age. So fundamentally new is this that, glancing superficially, only two large periods are really found in the cultural history of Norway : on one hand the ancient method in the hunting, catching and agriculture of the Stone Age and Iron Age to the 19th century, and, on the other, the 19th–20th century scientific-technical reconstruction of livelihood.

It is not necessary to sum up all this but I would like to emphasize some aspects. The steam-engine and then electricity transformed hunting, fishing and agriculture, and created industry as the co-ordinator of all the sources of modern times. Remember what the development of communication means ! Today it may cost more to carry a barrel of grain a few miles across country in Norway than it would do to send it across the Atlantic. The mountain farms of Norway have been hit hard.

The new technique has shattered the thousand-year old Norwegian agriculture. The ancient principle was to make everything on the farm itself, or, at all events, to be able to do so. Now this is done by the makers of agricultural machinery, the tool workshops, the mechanical factories, the spinning mills, tanneries, and the footwear and clothing factories—everything, yes, even food. The working-day of the farm has assumed a new mien. Instead of resurrecting the old in the glamour of a kind of false romanticism, we should try to understand the fundamental elements in both the old and the new—which are one.

The old community was lightly linked together because the totalitarianism of the individual farm or holding was the main principle. The modern community is exceptionally strongly linked because

cooperation is the sole possible living principle. The old Norwegian community had few of the prerequisites wherewith to develop a State —the modern, almost too many. The water-saw and the timber, the towns and wholesale trading of the 16th and 17th centuries gave rise to and created absolutism as a form of government in West Europe. Science and technique in the industrial life of the 19th and 20th centuries is transforming and creating a new governmental power.

Hunting and fishing have so far received the greater part of modern technique—with no disparagement to industry. The sea and the use of the sea are in the throes of a mighty development in Norway.

The Motor Age

The greatest, and for Norwegian conditions perhaps the most important, element of reform has, however, come with the internal combustion engine. History is quickly made in our days. Not a generation ago, fishermen wanted the motor engine forbidden in Norway. Now, not a fisherman could be found to do without.

The motor engine is something more than an extension of mechanical power. It comprises, just in itself, material to regain something of the individual culture the steam engine was about to crush in Norway. The motor engine is the implement of the individual both at sea and ashore. It multiplies effort, it creates a new standard both for the culture of fishing and hunting and for that of farming, unattainable with the late technique. Think of what a motor engine means to a boat previously dependent upon the wind ! The engine does not only change the requirements of a boat and enormously increase its utility but it changes the sense of time and distance and decreases seasonal obstacles ; it is deepening Norwegian folk-psychology, enriching it, making it more manifold and more awake. It will come to change rhythm of the Norwegian form of expression on every hand. In brief, every young boy now growing up has been born to the beat of its quick measure. They and it will create a new Norway without having the least idea of doing so. The motor engine has given new and immense chances to all the most typical qualities of the Norwegian chase.

In the country, the motor engine has been allotted a great task, primarily in agriculture but also in linking up the various districts. With the theme, therefore, I have sought to indicate, it cannot be any very unreasonable prophecy to call this age in which we live—*The Motor Age*.

The motor engine has not merely consolidated itself in all our potentialities as a people, but it is about to re-create something of the old invaluable feeling of labour's individual efforts and indispensability, so much of which has been swept aside by machine culture.

These are only a few rough features I have sought to show. They do, however, touch upon problems which today in equally high degree must be solved by cooperation between archaeology, ethnology and history. Such an attempt towards understanding is what I would seek in this fragment, which I have termed *From the Stone Age to the Motor Age*.

The Early Art of Northern Europe
a review

by A. Vayson de Pradenne

1. Kilbride-Jones, 'The Evolution of Penannular Brooches with zoomorphic terminals in Great Britain and Ireland'. *Procs. Royal Irish Academy*, 1937, xliii.

2. Gustaf Hallström, Monumental Art of Northern Europe from the Stone Age. 1. The Norwegian Localities. Photogravure plates, text-figures, and atlas of 48 plates. Stockholm: Bokforlägs Aktiebolaget Thule, 1938. £3.

3. Herbert Kühn, *Die vorgeschichtliche Kunst Deutschlands*. Im Propyläen Verlag, Berlin. 612 pages, 200 text-illus. and numerous plates. Price not stated.

4. Frederik Adama van Scheltema, *Die Kunst unserer vorzeit*. Bibliographisches Institut AG, Postschliessfach, no. 438, Leipzig C 1. 1936. rm. 4.80.

5. A. W. Brøgger, 'Gullalder'. *Viking*, 1937, pp. 137–195, plates xvii–xxvi.

THE various publications here reviewed consist of works which are united by their subject-matter but they differ widely from each other in character and scope. The work of Mr Kilbride-Jones[1] is a monograph strictly confined to certain objects found in a certain part of Europe; that of Mr Hallström,[2] on the other hand, consists of what may be called a comprehensive monograph—that is to say, it brings together and relates several straightforward descriptions of a single subject (rock-art), but covers many different parts of a large archaeological region. Messrs Kühn[3] and Adama van Scheltema[4] have touched upon a vast subject—prehistoric and protohistoric art in Germany—so that their productions assume the form of text-books.

Mr Kilbride-Jones's monograph is devoted to ornamental objects of a type which he calls 'penannular brooches with zoomorphic terminals'; but he does not overlook the fact that the original type of the brooches in question has no representation of an animal, and that the name suggests a Teutonic zoomorphic decoration to which they are quite unrelated.

The author gives excellent illustrations of more than a hundred examples. Relying upon solid archaeological evidence, such as finds associated with well-dated objects (e.g., the Longfaugh burial), and on a careful analysis of forms that illustrate the evolution, he concludes that, from a very simple original in the first century in England and Scotland, this type of brooch gave rise at the end of the second century to a 'northern developed form' which lasted in Scotland down to the fourth century and in Ireland to the eighth.

In this latter country the author distinguishes four groups, A, B, C, D,

whose development he attempts to discover operating under the influence of a surviving La Tène art. In England and Wales occur instances of the 'northern developed form' as well as those of a smaller 'southern developed form'.

The publication brings to our notice ornaments some of which are little masterpieces of a very refined art, which could employ with a remarkable sense of proportion a decorative richness that recalls cloisonné-work. It brings to light an instance of artistic development—always an instructive thing—and is a good example of an archaeological method which is valuable when it is used, as here, within strictly confined limits of space and time and upon a large array of objects;—a method which, when relying mainly on typology, would be endangered by the phenomena of retardation and convergence.

Mr Brøgger[5] deals with the period of Norwegian history during which the country was unified under a monarchical régime, that of Stiklestad. Archaeologically this period was known by rich burials, from the tomb of the queen of Oseberg, grandmother of Harald Hårfagres, down to the Christian burial of Olaf Haraldson in Trondheim cathedral. The author draws upon the Skaldes poetry and the Sagas to show the political system of this period. A chapter called 'Storhauger og Kongshauger', names of huge barrows and royal barrows, is devoted to monuments of this type that have produced so much of the evidence. The illustrations represent some of the carved wood and above all the barrows themselves, which in a period of little local chieftains were of primary importance. The barrow was at one and the same time a 'motte' or raised point (*Hochsitz*) and burial-mound. Its range was from the seventh to the ninth century. After the establishment of the single kingdom of Norway by Harald Hårfagres in the tenth century it lost its chief importance; for then the election of the king replaced the old allodial royalty, whose mark of privilege was the royal motte. The burial-mound of Haakon the Good at Seim in Nordhordland, dating from 961, was the last to be raised in Norway.

In his final chapter Mr Brøgger studies some aspects of the ancient culture as represented in the great poems of Rigstula, Håvamal and Voluspå.

The work of Mr Hallström forms the first part of a publication which we may expect to provide archaeologists with a practically complete documentation of Scandinavian rock-art.

In his preface the author reminds us that the general plan of his work was drawn up in 1906. Since then he has carried out much field-work, watching his material grow all the time—38 sites in Norway instead of 8. No doubt he has drawn upon the work of his Norwegian colleagues, but his own is also the outcome of a direct personal knowledge of original sources. It is a book that meets a need, and which one is glad to possess—a monograph of the second order, but one achieving the same kind of accuracy and reliability as a detailed monograph and covering a large field. On such foundations general studies could be laid with both safety and ease. Mr Hallström must also be congratulated for making his results easily accessible by publishing them in a well known world language.

The plan chosen is the simplest and in our opinion the best. The author first sets down the facts one by one. Each chapter is a small monograph in itself, devoted to the study of a region, with detailed descriptions and reproductions of the works of art (rock-gravings) known there. Further, without waiting for the completion of the work, when he will state his opinions and general conclusions, the author gives an individual discussion of the essential characteristics of each site, comparisons with other material in the Nordic area, together with an account of archaeological discoveries made in the neighbourhood. This last item has, in a large and always rather thinly populated country, an importance that it would lack in denser regions where successive cultures are often to be found superposed.

The book contains 37 chapters and numerous illustrations which give one an excellent idea of the sites and rocks on which the documents illustrated are to be seen. For the study of these, each of the separate plates in the album gives the whole group of the figures as they are to be found on the rock itself. Thus the reader is provided with the best possible substitute for the original document, which often consists of large groups whose meaning, or unity even, can thus be considered ; for the whole design may be the work of more than one period.

These Scandinavian rock-sculptures, carved on ice-smoothed granite, form a long series dating from the Neolithic at least down to the Prehistoric and Roman Iron Age. It is impossible not to see in them a certain general resemblance, in spite of the greater or lesser degrees of stylization. The abundance of the evidence makes it possible in many instances to study variations of technique and differences of style, as well as superpositions ; thanks to this, therefore, one may hope to be able one day to discover the stages in the evolution of rock-art in

the North European region. We shall not attempt here to anticipate the general synthesis which Mr Hallström will provide in his next volume.

The author often refers to the theory of two main groups consisting of groups in the Nordland and a South Scandinavian group, whose distribution-areas may overlap chronologically. The oldest Nordland pictures are remarkable for their naturalism, vigour, purity of line and size. The naturalism is always of a kind that strives so hard after neatness and simplification that it is plainly not far removed from conventionalism. The best known and most striking example is the single reindeer of Böla. The commonest subjects are reindeer, elk, water-fowl, whales, fish, etc., shown in profile and generally in stationary positions. At the end of the Stone Age and in the Bronze Age stylization is evident; one comes across outlines of the human figure, quadrupeds whose size decreases and whose legs reduced to two or four sticks tend to disappear altogether; the subjects are often found together in groups, as at Bogge. Behind a conventionalization that is puerile in character one can sometimes detect considerable accuracy in the observation of attitudes.

Representations of ships have a prominent place in the Bronze and Iron Ages. Mr Gjessing has already studied closely the chronology of the ship-pictures of Bardal, where they are numerous. Mr Hallström starts with a methodical examination of the documents of rock-art, comparing them when possible with pictures drawn on movable objects that can be dated archaeologically (such as the bronze razors); and his researches enable us to follow the course of artistic development in an unusually homogeneous region and also to study such elements of culture as navigation. One looks forward to the early completion of this admirable work, which follows in the best traditions of the great Scandinavian archaeologists.

It is no reflexion on the merits of these to say that the finesse at which they aim in the study of details, and which is in fact attained, would be illusory in most of the older regions of the world where cultural superpositions, juxtapositions and overlaps complicate the problem tremendously. It is all the more important, therefore, to be able to study the relatively straightforward stages of evolution in long stretches of time in these exceptional but fortunate regions.

'Bookmaking is a profession', said a naturalist, and it is one that Mr H. Kühn has thoroughly mastered. The work of the learned editor of IPEK portrays a judicious selection of evidence, a presentation of it

which should be found satisfactory on grounds both of logic and of content, and a due proportion between the different parts of the book.

His work is built up round the framework of the classic chronological scheme, whose chief divisions are adopted : Palaeolithic (glacial epoch) which he dates 20000–8000 B.C. ; Mesolithic (8000–2000 B.C.) ; Neolithic (reduced to the short span of 2000–1600 B.C.) ; Bronze Age (1600–750 B.C.) ; Iron Age (750 B.C.–about A.D. 300) ; Folk-wandering Period (A.D. 300–800) ; Viking Age (A.D. 800–1050).

The standpoint adopted, with its limitation to Germany, is naturally rather troublesome, being at times too restricted and at others inconveniently large. The history of Art in any given country can only be understood in relation to the history of art in general. In each epoch there have been only a limited number of centres whose light radiated outwards to other lands. These centres occupied different places in the course of the ages. When one studies any particular country, such as Germany, from the point of view of art, one beholds a succession of reflections from different radiating centres, cast back from a region whose importance varies and is sometimes very slight.

Each form or manifestation of art has a beginning, culmination and decline ; so that, for exegesis as for a proper understanding of artistic phenomena, the best course would be to adopt a position in each of the great artistic centres in succession, and from these to trace its full development in time, noting the geographical limits of its influence.

But the modern point of view, in a world politically divided up into compartments, often has to be studied in accordance with those compartments. In such circumstances one is obliged to recover the old boundaries in each period—those of art as well as those of general culture and political power, for all these are more or less closely interrelated. Mr Kühn is therefore fully justified in opening his work by a historical summary explaining the origin and development of the Germanic world. The whole is a clear and well written account of the chief facts available. But it seems constrained to conform with the ideology of an existing system. That is unfortunate from a scientific point of view, for ' no man can serve two masters ', especially when one of them is as exacting as scientific research. The author, after explaining how a small coastal zone on the shores of the Baltic and North Seas may be regarded as the Germanic cradle, thus summarizes his general ideas on the matter :—

' It is the fatherland of all the Germanic peoples who spread over Europe and later over the world ; first the Goths, Lombards, Vandals,

Burgundians, Alemanni, Francs, Angles, Saxons ; then the English, Dutch, Germans, who occupied North America, South Africa, Australia, the South Seas, Eastern Asia. While the first regular migration of peoples scattered the Germanic populations over the whole of Europe and North Africa, the second, from A.D. 1500 onwards, covered the whole world.

' The fatherland of all these folk is the little land on the shores of the North Sea and the Baltic '.

One anticipates that, when the main current of history is viewed from this angle, the history of Art itself may emerge in rather a peculiar form. One must admit, however, in his treatment of details, Mr Kühn holds fast to the most correct method in his use of archaeological evidence, and in his study of the distribution of types and of art influences. Many excellent sketch-maps and figures portray these in a visual form.

For the Palaeolithic period, owing to the very small number of important works of art found in Germany, the author strengthens his materials with very fine classic instances, borrowed from adjacent regions, particularly France. A very clear idea is obtained of the remarkable uniformity of Magdalenian art over a vast area, both as regards animal motifs and pure decoration.

In the Mesolithic these last only survive, and are more or less similar to the motifs of the preceding period ; the author emphasizes the great difference of mentality separating the peoples of the glacial and post-glacial epochs.

The chapter devoted to the Neolithic period deals chiefly with the decoration of pottery, while that on the Bronze Age is mainly concerned with the art of weapons, jewels and moulds. The accidents of discovery doubtless conduce to this kind of presentation. But one must not overlook the huge gaps in our knowledge about whole groups of objects ; and that this lacuna, while forcing us to compare unrelated factors, jeopardizes the conclusions drawn from such comparisons.

For the Neolithic, the author adopts a classification into culture-circles, based on pottery : the Kamm-keramisches Kreis (comb-ornament) and those of Michelsberg, the Bandkeramik, the Nordic, cord-ornament, and the Glockenbecker-Kreis (bell-beakers). This classification is of course very useful for the arrangement of museum-collections in a country where pottery-finds have been very abundant ; but what is its value from the general artistic point of view or that of the stage of culture reached and the inter-relations of the peoples who

made these types of pottery ? But this is not the place to criticize a classification by pottery, and in any case there is a convenient way of presenting the different artistic types.

For the Bronze Age Mr Kühn divides the area of which he has studied the artistic evolution into a Germanic, Celtic and Illyrian circle (Kreis), to which in the Iron Age are added the Roman and Syrian.

The Folk-wandering Period, which the author calls the second flowering-period of the Germans in prehistory—the first being the Bronze Age—has provided us with evidence of its art chiefly in rich and massive jewellery, brooches, and belt-buckles. His work contains an excellent selection, accompanied by a comparative series of foreign examples which brings out the remarkable influence of Chinese art in the matter of animal design—for instance, the grasshopper-motif whose symbolism was known, according to Chinese writers, in the first century B.C.

Last, a short chapter of five pages on the art of the Vikings enables the author to give some nice illustrations of the famous Oseberg ship, of the gold discs with interlacing ornament from Traen and Hindensee, and richly ornamented sword-pommels.

The book has a catalogue of illustrations with the bibliographic and museographic references concerned, as well as synoptic tables of the different periods and an alphabetic index. It is a valuable book of reference, easy to consult, in which one can find a selection of the best products of prehistoric art, not only from Germany but also from neighbouring countries. In short, a fine, useful book.

The work of M. F. Adama van Scheltema is described as ' the Germanic culture from the Stone Age to the early Middle Ages, as seen in the mirror of Art '. By his interpretations of the art the author has undertaken the task of reconstructing ' the history of the spirit ' (Geistesgeschichte). His dominant idea (Kerngedanke) does not need, he says, to be argued at length ; ' it does not need expanding in long-drawn-out theoretical disquisitions '. He starts out with the idea of a Nordic ' Kultur-organismus ', whose development has to be followed through the ages in order that it may be comprehended. If one adopts the ordinary method of studying in succession the chief facts concerning the ancient peoples of the East and the Mediterranean and those of the West down to the Middle Ages and so on, declaring this to be the cultural history of humanity, it is then impossible, the author thinks, to explain the existence and development of the Nordic cultural organism.

In the course of his work, Mr Adama van Scheltema further elaborates his ideas, in connection with illustrative art.

It is doubtless right to criticize a system of composing the history of civilization which consists merely in setting end-to-end the disjointed fragments of the history of the different peoples who have successively formed the vanguard of progress. But are not Mr van Scheltema's postulates open to danger ? Does such a thing as a ' cultural organism' formed in the Stone Age, whether Germanic or Nordic, exist at all ? Can the medley of tribes and peoples who have jostled each other for several millennia on the soil of the existing* Germany be regarded as a living psychological entity that has had an evolution of its own ? One may doubt it ; and if mistakes have often been made by imagining that a transplanted culture could wholly replace another, for there always remains something of the primitive substratum, is it not also a mistake to misconceive the capital importance of foreign influences which have sometimes caused actual ruptures in the cultural evolution of a people ? The true answer is to be looked for, surely, in the lesson of history, a lesson that is reinforced by the findings of ethnology about the mutual reactions of cultures that are on different levels. Here once again one has reason to suspect that the author's views have been influenced by circumstances that hamper the scientific evaluation of facts.

This said, one must admit that Mr van Scheltema's book is full of interest. Without Mr Kühn's full treatment it contains nevertheless a good number of well reproduced documents† (68 plates). Its plan is rather different. He sets apart first all that concerns primitive times (Urzeit) and deals rather rapidly with the problems of representative art, bodily ornament and the ornamentation of objects during this epoch. Emerging then from this primitive world—so different from our own—of nomad hunters, and coming to the Neolithic, to the ' sedentary peasantry ', the author reaches the beginnings of Antiquity (Vorzeit), from which actual conditions have developed by continuous evolution. From that point onwards he thinks we can really understand ourselves throughout the generations. Strange though the spirit of the reindeer-hunter be to us, yet it is easy to make contact with the spirit of Antiquity

* This review was written about the middle of 1939, since when the term has changed its connotation. We do not know how this change affects the ' nordic cultural organism ' and the general line of the argument.—TRANSLATOR.

† The word ' document ' is the same as the French word used in the original, and is retained here to describe an ' item of evidence '. A bronze axe, for instance, constitutes an archaeological ' document ', equivalent to an original MS. in history.—TRANSLATOR.

' by way of the stable or across the threshold of the hut '. In consequence of this unity he proposes to deal with his subject under the categories of art, each being studied through different periods—the art of building, the drawing or painting, plastic and decorative art.

Mr van Scheltema is a philosophic soul; he likes not only general ideas but also the analysis of ideas, and enquiries into ultimate causes. He strives to interrelate facts and to explain them, particularly where he is dealing with transition, with the movement from one group of ideas to another. Thus the idea of decorating objects can be related to bodily ornament by the case of a mother ornamenting her child. These bright ideas and these attempts to interpret and explain are well calculated to interest educated folk whose curiosity about origins has been aroused, and who would like to have everything explained. They are intellectual concepts, nice and agreeable to meditate about. How far do they coincide with reality? The positive evidence available is too scanty to tell us. All philosophical concepts have an artificial, incomplete, disputable aspect; but that does not mean that one is obliged to condemn them.

Amongst the ideas developed by Mr van Scheltema we may cite the parallelism which he establishes between the artistic capabilities of the palaeolithic peoples and those of modern children. For an explanation of the hunters' naturalism he looks not to a particularly keen power of observation but to the development of the highest intellectual functions. He does not agree with Verworn in thinking that children's pictures are due to the need for reflection impressed upon them by education but to the fact that, when they begin to draw after reaching three years of age, they have passed, between their third and fourth year, the stage of self-consciousness (*die Bewustseins-stufe der einzeitlichen Jägertums*). Here is an idea borrowed from Haeckel's theory of recapitulation, and on the other hand that denial of the importance of environment which governs the author when he looks for an explanation of the origin of art in the country which he is studying.

The author notes that in the Iberian peninsula the transition from Quaternary (palaeolithic) to Neolithic and Metal Age art is marked by a conventionalization which charges the drawings with an intellectual factor that is wholly new; for forms are represented not as they are seen but as they are imagined. The author then compares the art of the Bronze Age in Liguria, Sweden, etc., with childish pictures, and then comes to the developed forms of Hallstatt art and to influences derived from the south. After a rapid description of the

development of culture and art in the eastern Mediterranean region and of its influence on adjacent regions, he has some interesting, but unfortunately unexpanded, remarks to make about the transformation of classical art during its advance northwards ; for instance, how relief ornament flattens progressively and finally becomes engraving. These he calls the ' assimilation ' of foreign images, the ' nordic culture ' rejecting certain ' indigestible ' elements. This is a form of words that could also be used of a pupil receiving instruction from a teacher, or of the experience of existing primitive peoples influenced by contact with our civilization.

The section on decorative art is particularly well worked out. The author perceives a great difference, a gulf, separating the imaginative decorative art of primitive times, which pays no attention to the shape of the object, and the art of sedentary peasants which conforms and adapts itself to the object decorated. In point of fact one could find materials in quaternary art from which a bridge could be built across this gulf ; the famous dagger-handle of Laugerie-Basse, for instance, where a reindeer is cleverly adapted to its function, or the spear-throwers of Breoniquel with their carvings along the axis of the round shaft and a horse's head at the hook-end, and so on. But Mr van Scheltema's treatment of neolithic art and its development is very attractive, particularly that which relates to pottery. The first style, that of Michelsberg and the megaliths, in which the pattern and background (*Muster und Grund*) are kept distinct, is succeeded by the second, those of the passage-graves of Scandinavia, of Bernburg and of the Kügelamphorae, etc. ; this is marked by an exuberance of decoration which makes him call it the ' neolithic baroque'. In Denmark a third style can be detected in which there is a break-up of the decorative uniformity that interrelated designs had given to the preceding style. Its place is taken by complicated motifs with a symbolic significance. As for the Bandkeramik, the many delicate problems which it raises are left undiscussed, and it is stated simply that it appears to have no links with Mesopotamia but on the contrary with South Russia, Central Asia and China.

The problem of Germanic animal-ornamentation (*Tierornamentik*) is also given careful consideration. Starting with copies of designs of southern origin, the author demonstrates that it finally abandons the realistic representation of animal-forms for purely decorative imaginary figures. Then these designs become interlaced and knotted and entangled until in the Viking age contacts with Byzantium in the east and with Mediterranean lands in the west oust the old Germanic

conception of ornament, substituting the figure of an animal adapted to decorative purposes, and even compositions of a scenic character. The Oseberg style may perhaps be regarded as a kind of Viking baroque which was succeeded by that of Jellinge in which under Irish and Anglo-Saxon influence there appear distinct (*bestimmte*) animal-designs ; the bird, the ' great animal ', for instance, such as occurs at the end of the tenth century on the Jellinge stone, whose opposite face has the figure of Christ.

What becomes then of the old ideas of the Nordic peasantry, with the transcendental spiritual uplift of the Middle Ages, in a Christian fellowship wholly absorbed in a divine ideal ? How were the survivals of the old decorative art united to designs imported from the east and south with those beliefs ? In too short a space the author outlines some traits of this great problem. So too he tantalizes us by his brevity in dealing with survivals of the old art in popular art, which he treats so well. Let us hope that he will deal with it more fully in another publication.

As for the book under review, one must accord the author a full measure of praise on two grounds : for his penetrating analysis and for a degree of insight that comes only from a deep love of his subject, the ' inner light ', also for a sincere, powerful and sustained attempt to understand and to interpret. Mr Adama van Scheltema doubtless does not always arrive at the truth, but who can boast of achieving such success as this ? In any case he has produced a book that is brim-full of ideas, one that carries in it the germ of many potential discussions and that should therefore be fertile.

Translator's Note

Since the above translation was made we have heard with the greatest sorrow of the death of M. Vayson de Pradenne. At the time of his death M. Vayson de Pradenne had the original manuscript and the typescript of the translation which had been sent for his approval. The present version has, therefore, been set up from the uncorrected pencil manuscript of the translator ; and several passages and quotations have had to be omitted. It is to be feared that there are still obscurities that M. de Pradenne might have been able to explain. The translation of a review of this kind is rather difficult ; for the subject is an abstract one, nor has the translator read the books.

M. Vayson de Pradenne will be missed by his many friends, not least by the readers of Antiquity, to which he had contributed from the first volume.

Notes and News

A FORGOTTEN EXPLORATION OF THE WESTERN ISLES

Demetrius, the grammarian of Tarsus, has already attracted some little attention in the history of Roman Britain, in that Plutarch[1] mentions him as passing through Delphi on his return from Britain, shortly before A.D. 83–4,[2] and taking part in a discourse upon the decay of oracles. Two modern critics, King and Dessau, have also observed[3] that this Demetrius seems to have left a record of his presence at York on a bronze dedication[4] to Ocean and Thetis and to the gods of the legate's palace. Haverfield, astutely noting[5] but not endorsing their conclusion, remarks that his presence in Britain is of interest in connexion with Agricola's educational programme. All these critics, too, recall that he made an exploration under Imperial escort: but none mentions his experiences in detail, and the eighteenth chapter of the dialogue *de defectu oraculorum*, which narrates them, seems worth translating in full.

His story runs as follows, reported by Plutarch:—'Among the islands round Britain were many deserted and scattered ones, some of which were called after heroes and spirits. He himself had sailed, on inquiry and exploration under Imperial escort, to the island nearest the deserted ones, which itself had few inhabitants, all being held sacred and inviolate by the Britons. Soon after his arrival there occurred a great confusion in the air, with many heavenly portents; squalls got up, and there were whirlwinds with lightning. When these subsided the islanders said that some great one had passed away. As when a light is lit, it shines and does no harm, while its removal inconveniences many, so great souls shine with calm and guileless light, while their extinction and destruction sometimes, as in this case, cause hurricanes and rain-storms, and sometimes charge the air with pestilences. Certainly there was one island out there where Saturn lay in

[1] *De defectie oraculorum*, c. 18=*Moralia*, 410, 38.

[2] For the date, the Games-presidency of Callistratus, see Pomtow, in Pauly-Wissowa, *Realencyclopädie*, s.v. *Delphoi*, 2601.

[3] King, *Arch. Journ.*, XXXIX, 23; Dessau, *Hermes*, XLVI, 156–60.

[4] CIL VII, p. 62; *cf.* E.E. IX, p. 560, for Haverfield's comment.

[5] *Romanisation of Roman Britain*, 4th edn., p. 34; cf. Tacitus *Agr.* 21, 2. Plutarch, however, does not specifically state what Demetrius had been doing in Britain.

captive sleep, watched by Briareus of the Hundred Arms : sleep had been invented to enchain him, and round him lay many spirits, attendants and ministers '.

Some curious points emerge from this solitary page from a forgotten explorer's log. Historically, it is an exceedingly interesting sidelight upon Agricola's activity in exploration, a year or two before his fleet rounded Cape Wrath. Voyages like this not only paved the way for Roman conquest, but must have formed the basis of that geographical knowledge displayed in Ptolemy's account[6] of Britain's coasts and in the *Ravenna List*. For although Ptolemy's treatment[7] of the western isles is sketchy and perfunctory, the latter source preserves[8] a remarkably detailed list of islands. Indeed, the impression of detail which the *List* conveys is not the only point of agreement with Demetrius : the name *Minerv(a)e*, attached[9] to an island, shows that one of these at least was dedicated to a goddess equated with Minerva like the Celtic *Sul* at Bath. Other names[10] in the *List*, like *Anas* and *Atina*, ' Drake ' and ' Duck ' islands, might seem to indicate a playfulness in nomenclature among the Roman explorers, not unknown in other ages. *Grandena*,[11] however, is so near to *grandinea*—' full of hail ', that one is tempted to wonder whether the name covers an experience like that here described.

Socially, too, the story has its interest. It gives us a rare glimpse into the methods of Imperial exploration, using educated and inquisitive Greeks for its intelligence-officers. Demetrius not only cross-questioned the natives but induced them to talk about their native folk-lore. What would we not give for the rest of his note-books ! It is not the purpose of this note to examine this side of the narrative, though it is hoped that it may stimulate those better acquainted with Celtic lore to contribute to the discussion. Three points, however, may be observed where there is close correspondence with the testimony of Demetrius. The idea that the islands are holy has not utterly disappeared : for a small group of islets off Lewis is still called the Shiant or ' Charmed ' Isles, guarded by the storm-kelpies known as *fear gorma*, the Blue Men of the Minch. Secondly, there is still a widespread belief in the western isles that the Spirit-multitude (*sluagh*)

[6] *Geographia*, II, 3, 1–6.

[7] *op. cit.*, II, 2, 11.

[8] *Ravennatis Cosmographia*, ed. Parthey and Pinder, v. 32, pp. 440–41.

[9] *op. cit.* p. 440, 17. [10] *op. cit.* p. 441, 11 and 13. [11] *op. cit.* p. 441, 17.

travel in eddies of wind. A third point of contact is much older. The attitude taken by the islanders with whom Demetrius talked towards the spirits and their manifestations, and their philosophical explanation of the change, find some curious echoes in the *Mabinogion*. In the tale of Taliesin, the poem on the fate of Maelgwn Gwynedd describes the arrival of the Yellow Fever as a spirit: 'Great God! how the sea whitens, When first it comes! Great are its gusts when it comes from the south! . . . it will not suffer for its doings, Seeing it is blameless'. The correspondence is not, of course, precise. But the poem, though nominally Christian, is more than half-pagan, like much Dark-Age thought; and its sentiments manifestly belong to the same world as that so sympathetically recorded by Demetrius.

I. A. RICHMOND.

IRANIAN TIN

The subject of natural tin-deposits in Iran has already been referred to in ANTIQUITY (1938, XII, 79–81). We revert again to it because it has an important, if not decisive, bearing upon the origins of metallurgy itself, and because it is a question of fact that is capable of solution by any observant traveller. If this note should be read by anyone who visits the region in question, we ask him to keep an eye open for old mine-workings and slag-heaps, and if possible to put in his pocket a piece of the ore, however small. Such a specimen, in expert hands, might solve a long-standing problem of archaeology. Moreover, it seems not unlikely that this region may be in the news again before long.

Since the previous note was published we have been able to read an article published in 1895 in the rather inaccessible Transactions of the Institution of Mining and Metallurgy of London (vol. III, 2–39). It is by James Mactear and consists of notes on Persian mining and metallurgy, based upon a journey in Persia undertaken by the author in 1893. The most interesting part of this article concerns the alleged tin-mines of Angert; but the information given is not that of Mactear himself, who did not go there, but of previous prospectors, whose report* Mactear quotes in full. It appears that in 1837 Sir Henry Bethune erected some iron-works 'about 60 miles northeast of Tabriz, for the purpose of smelting a magnetic iron ore which is found in

* It is not evident whether this Report was ever published, no reference being given; Mactear simply states (p. 3) that it was sent by Dr Riach 'to Lord Palmerstone in 1837'.

immense quantity near the village of Juwan. These mines were visited by Dr Riach. . . .', who also reported as follows :—

' Leaving the establishment of Lindsayabad, we travelled up the little stream of Anngert, and after marching three-quarters of an hour, up-hill a good way, and leaving the stream on its left bank, we came to perhaps the most wonderful mine of tin in the world. I call it a tin mine because Mr Robertson (superintendent of the works here) and Rowe (one of the foundry establishment), who is an experienced miner, and has been brought up at the Cornish mines, both call it so.

' On the right hand of a narrow ravine, and about 100 feet from its lowest level, we saw perhaps 400 or 500 tons of stones collected and ready to be transported. This had recently been quarried close to the spot from an extensive mass of rock, which projects beyond the general level of the hill, and from between hard grey granite rocks.

' This enormous mass is about 130 to 150 feet wide ; it extends up-hill (still on right side of the ravine) to the top for a mile at least. In this direction it has not been traced further, merely from an impression that there is here enough of ore for any lifetime.

' It descends also to the bottom of the ravine, still on the surface, and here becoming much intermixed with masses of very rich copper ore, it is seen ascending the opposite side. What depth into the bowels of the earth this mass may penetrate is unknown, but the experienced people just alluded to assure me that all this is tin ore of an extremely rich and excellent quality. It is a greyish stone, heavy, and almost every piece examined has numerous brownish-coloured crystals in it, which are said to be quite characteristic of the metal.

' I am assured that a vein of tin ore in Cornwall of only 6 inches thick, and worked at from 100 to 200 yards deep by the expensive process of boring, etc., and with the aid of steam engines, etc., is reckoned well worth working ; while here thousands of thousands of tons can be quarried as any common rock would be, and the roads are such that there is no difficulty in having the ore carried on horses or other cattle to any place for smelting.

' It was not before known that tin existed here till Mr Robson [Robertson ?] made the discovery ; and if this quarry be so rich as it is said to be, it is quite evident that there is enough of this metal in Karadagh to supply the world ; for other mines of the same stone have been discovered of perhaps as great an extent as that just described, and even richer in metal, but they are more difficult of access '.

From a perusal of the above I came independently to much the same conclusions as a certain Mr J. H. Collins, who took part in the discussion following Mactear's paper, namely that it was ' quite evident that Dr Riach did not know much about tin, and I doubt whether Mr Rowe knew much about it either, though he was a Cornishman. I think ', he added with some justification, ' it would be very hard to get anybody to believe that such a deposit as this is described to be, and found so long ago as 1837, has remained untouched for more than half a century '.

Dr Riach's report was throughout decidedly optimistic in tone, and one wonders whether his optimism was in any way stimulated by hopes of future employment. However that may be, the presence of natural tin deposits near Angert must not be accepted until it is supported by independent and less suspect testimony.

Mactear reported the presence of 'immense excavations or open cast workings still to be seen ' in the regions he traversed, evidence of an enormous amount of ancient mining. The presence of copper, lead and gold is well established.

A NATIONAL ATLAS

A proposal has recently been made to compile and publish a National Atlas of Great Britain and Northern Ireland. The scheme is described in the Report of a Committee of the British Association for the Advancement of Science (Report no. 2, January 1940, pp. 361–8). It was also the subject of a full and lively discussion at a recent afternoon meeting of the Royal Geographical Society (*Geographical Journal*, February 1940, pp. 96–108). Bright ideas originate usually from individuals, not from committees ; and the old hand's first reaction to such a scheme is to ask, Who is behind it ? A shrewd guess would fix the responsibility upon Professor E. G. R. Taylor ; another would, in this case, put its chances of realization high. Such a project needs driving-power, enthusiasm and knowledge ; and an expenditure of national funds that is, by any rational standards, infinitesimal. Any further considerations of its chances would lead us astray.

We accept, for the purposes of this notice, the premises that such an Atlas is desirable at the present time. With two provisos one would, if compelled to answer ' yes ' or ' no ', most decidedly say ' yes '. Those two provisos are (1) that the Atlas should cover the whole, not merely a part, of the British Isles and (2) that a permanent organization should be established, with endowments, or a call on state funds,

for keeping it up to date ; otherwise the atlas will merely standardize such errors as are inevitable in all first editions. New editions of these maps are as necessary, in their sphere, as new editions of the Ordnance Maps ; nor would any written lists of addenda and corrigenda meet the case in either instance.

The necessity of including the whole of the island of Ireland should be so obvious as to need no argument ; particularly to geographers. If practical difficulties are insuperable, then so much the worse for those who create them. After all, one of the most interesting features of Irish history lies in the mutual and varying relations between North and South ; the corresponding maps of England would hardly be intelligible if Kent, Surrey and Sussex were omitted merely for political reasons.

We therefore, with these qualifications, definitely support the project ; and such criticisms as we make must be read in that light.

In many ways the project might be criticized as premature because the preliminary surveys had not yet been made. A similar criticism might have been said of the attempts to produce a map of Great Britain before the surveys of General Roy and the early Ordnance Surveyors made possible the production of an accurate map of the island. There is, however, a difference—the early maps before the Ordnance were the best that could be produced at the time. The science of survey, and the instruments, had to be made and developed ; as soon as they were, they were utilized. But for some of the maps proposed for the Atlas, the soil-map for instance, the scientific skill and the human agents for carrying out the preliminary survey do exist, but the surveys do not. Surely the proper course would be to carry out a soil survey of the whole country first, publish it on an adequately large scale, and *then*, but not before, incorporate generalized soil-maps in the Atlas ?

Similarly with megaliths. Any atlas-map of megalithic monuments published now would be full of inaccuracies, and would certainly not, in the words of the Committee, ' mark a great step forward in the dissemination of accurate knowledge '. A survey of megaliths *is* being carried out by the Ordnance Survey—slowly because resources in men and money are limited, but as carefully and thoroughly as possible. Until this survey is complete any small-scale generalized atlas-map must be misleading. Indeed this principle is conceded by the Committee whose report says the Atlas is to ' present the results of the various Surveys, returns and censuses made by Government Departments '.

Valuable as such an Atlas will eventually be, the present need is rather to push on with the preliminary surveys. For the backwardness of these the responsibility must be placed upon the Government; the skilled labourers and the harvest are both present. How many people realize that the most fundamental of these surveys—the geological—is still incomplete? There are still no official geological maps of the Outer Hebrides, including of course the large and geologically important island of Lewis. And of course the drift-maps are also terribly behind the times. But it is not the fault of the Geological Survey.

There is another practical difficulty in the publication—the premature publication we think—of Atlas-maps when no comprehensive surveys are available—that of classification. Until the units concerned (whether megaliths or anything else) have been surveyed, vetted and compared, classification must be based largely on unverified assumptions. That was the disease which attacked a previous British Association Committee (on megaliths). When that Committee was formed—one of the veteran pioneer students of megaliths, A. L. Lewis, was present at the first meeting—the members all sat round a table and proceeded to draw up an elaborate classification, into which their as yet unvisited specimens were to be authoritatively forced. One member, being young and iconoclastic, suggested that they were putting the cart before the horse, that we had still to learn a lot more about the associations of, e.g., cists and 'dolmens', before we could classify them, and even ventured to cast aspersions on the pure nature of the 'dolmen'. To do so in such orthodox company was of course to show a reprehensible scepticism; and the game of classification went merrily on. So this member played the slower but surer game of go-look-see; and the tortoise is winning, its competitor having recently expired after a few convulsive kicks.

The Committee calls attention to the use of such an Atlas to 'administrators, public men', and others. Agreed, but only if they know how to use it; and we doubt whether they do. How can they when they are not taught to at their schools and universities? Until their education is reformed—and there are no signs of that on the horizon—such an Atlas will be as useless in their hands as knives and forks to a dog.

Of the historical maps it may be said that certain omissions should be rectified, but cannot be, again because the necessary research has not been done. Such are maps showing the extent of medieval Royal Forests (as perambulated 1298–1300, and before then), a Viking map,

a map showing medieval Honours and Castles (classified), Parks (based on Parliamentary Surveys).

The proposal, boldly envisaged and bravely initiated, might rank with the D.N.B., the O.E.D. and the English Place-name Survey; but all these three were carried out by a permanent organization created for the purpose. The first was financed privately, the second from Oxford, and the third is financed by a voluntary society. These sources are unlikely to be available for the Atlas, nor should it be left to them; for it is essentially an undertaking of national scope, for which a nation that can find six million pounds a day for warfare cannot possibly plead inability.

Finally, as a constructive criticism, we would put forward the following. Organize a permanent nucleus, possibly at the Ordnance Survey, endow it with a proper, adequately paid permanent staff, who can initiate or continue the essential preliminary surveys, and keep such maps as are published up-to-date (by publishing revised editions, based on card-indexes). The Ordnance Survey, as was remarked in the discussion referred to above, is an obvious headquarters, for it is the headquarters of the national cartographical survey, and it has a long-established traditional liaison with historical and archaeological work. It has also an archaeological department which has already done pioneer work on just such surveys. Of course the mapping of modern distributions (census results, economic facts, etc.) requires a special technique, which has to be invented or improved; but here at any rate the facts have been surveyed, and the work thereby greatly lightened. There again the Ordnance Survey has experience (witness the population-map published there). A permanent *experimenting* unit of this kind would be a national asset.

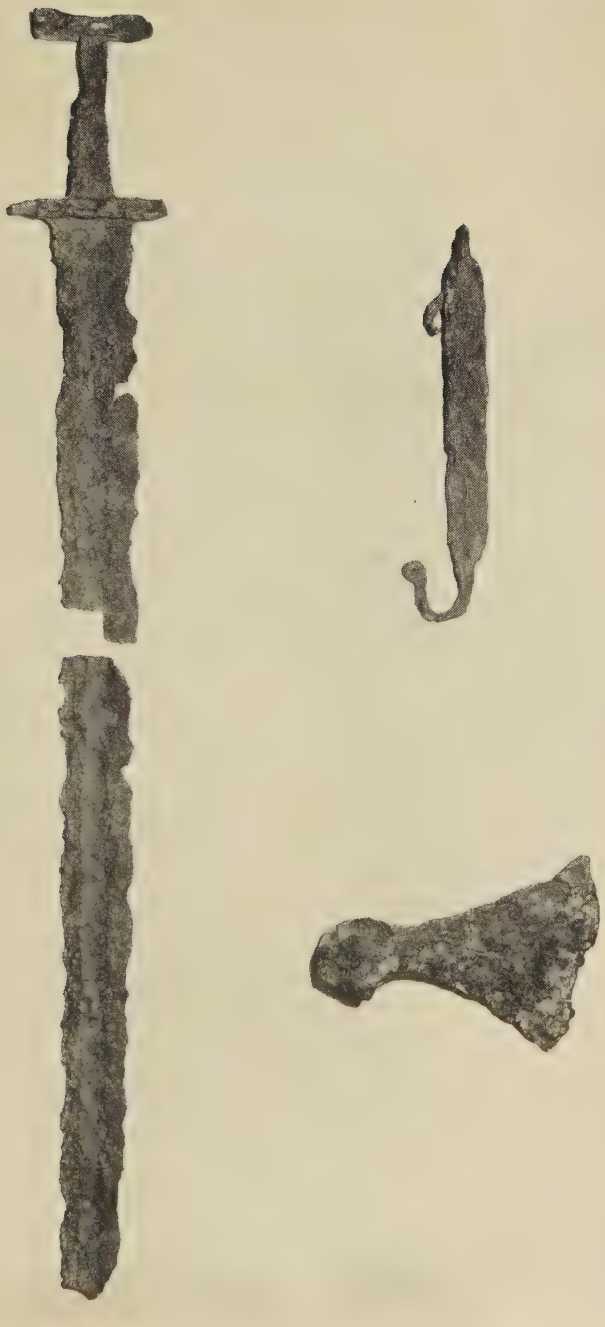
We wish the project success; but we wonder whether our friends the geographers, skimming lightly over the surface of the land, realize what a fearsome programme they have drawn up for themselves, and others. O.G.S.C.

VIKING WEAPONS FOUND NEAR BEARDMORE, ONTARIO*

We are indebted to Dr C. T. Currelly, Director of the Royal Ontario Museum of Archaeology, for the following copy of a note by him published in the *Canadian Historical Review* and for the illustration he allows us to reproduce (PLATE I).

* Reference to this find was printed in ANTIQUITY 1938, XII, 232–3.

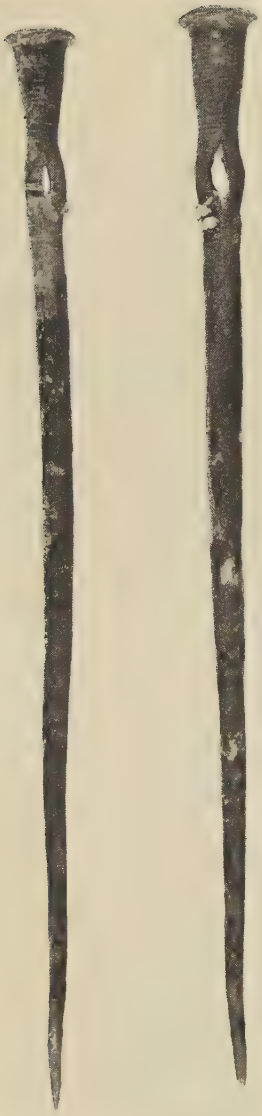
PLATE I



VIKING WEAPONS FOUND NEAR BEARDMORE, ONTARIO
(*see* p. 200)

facing p. 200

PLATE II



VOUNOUS TOMB 84, Nos. 29, 30
'TOGGLE' PINS (Full size)
(*see* p. 204)

VOUNOUS TOMB 84, No. 29
DETAIL OF PIERCING
(Magnified by 2·5)

VOUNOUS TOMB 84, No. 30
DETAIL OF PIERCING
(Magnified by 2·5)

'On 24 May, 1930, Mr James Edward Dodd of Port Arthur, a railroad man who spends all his spare time in prospecting, was sampling an exposed, nearly vertical, quartz vein near Beardmore, about seven miles from Lake Nipigon, in northern Ontario. At the point where the vein ran into the earth, there was a clump of white birch, consisting of an old tree that had died and a group of young trees sprung from the roots. Birch is a very hard wood, and to cut through such a mass of tangled roots promised to be a serious undertaking. Consequently Mr Dodd put in a considerable charge of dynamite and blew over the whole tangled clump. The big mass went over all together, and the rock which lay about three and a half feet below the surface was exposed. Lying on the rock were some pieces of iron. Mr Dodd threw these out and went on with his work.

'A few days later, a well-known man of the district, Mr William Feltham, happened to visit Mr Dodd's camp, and the two men discussed what these curious iron objects might be, and the meaning of the depth at which they had been found, and of the great mass of trees over them.

'A little later, Mr Dodd took the things to Port Arthur and showed them to Mr Aaron Lougheed. A few days after that, Mr John Jacob, of the game and fisheries service of the province of Ontario, and a brother of the late Fred Jacob who was well known in Canadian journalism, came into Port Arthur and called on Mr Lougheed. Mr Jacob has been for a number of years in touch with the Royal Ontario Museum of Zoology and is an extremely accurate observer of birds. Mr Lougheed told him of the extraordinary iron that had been found and took him to Mr Dodd's home to see it. It consisted of a sword broken in two, a very peculiar form of axe, and a bar, all of them quite seriously rusted. Mr. Dodd had no opinion as to what the objects might be, but told of the finding. After examining them very carefully, Mr Lougheed and Mr Jacob went to the public library, where they came to the conclusion that they were Viking weapons. Mr Jacob then sent word to the Museum, but this was done by word of mouth and the message never reached me.

'The things lay around Mr Dodd's house for some years and were offered for sale at a small price. Then they were thrown out into the back yard, but later Mr Dodd took them back into the house and made another effort to sell them.

'Some time later, Mr Dodd mentioned the matter to Dr E. M. Burwash, a geologist in the employ of the Ontario government, who sent

me word that there was a Viking sword in Port Arthur. I wrote about it but received no answer, and the whole thing seemed so utterly impossible that I did not go to Port Arthur to follow it up. Later, Mr O. C. Elliott, of the Collegiate Institute in Kingston, Ontario, saw the things and made an extremely good drawing. This he sent to me, together with an excellent description of the objects. I saw at once that they were without doubt Viking, and immediately wrote to Mr Dodd, who brought them down to the Museum.

'It was obvious to me that the weapons were a set—that is, that the axe and the sword were of the same date, which I judged to be about A.D. 1000. I asked Mr Dodd if he had found anything else, as I knew that there should have been another piece. He said 'yes'—that lying over the bar of metal was something like a bowl that was rusted into little fragments. He had just shovelled them out. This bit of evidence was as it should have been, and since no one unacquainted with Viking things would have known of this iron boss that covered the hand on the Viking shield, I felt, therefore, that there was no question that these things had been found as was described. In addition to this, there was the fact that the pieces formed a set. Although I am told that a fair number of sets have been found in Scandinavia, I had never seen a set in any of the Viking finds made in England, where odd swords and odd axes are occasionally discovered. I know of no case in England of the axe and the sword being found together. As suspicion of nearly everything has to go with all archaeological work, I had been suspicious as to whether the weapons had been brought from Norway or Denmark, and the Beardmore locality given to them in recent times; but the story as I have just told it dispelled this suspicion. I consequently bought the things for the Royal Ontario Museum of Archaeology.

'Shortly afterwards, Mr Jacob called and gave me a written statement as to his and Mr Lougheed's part in the matter. He said that on first seeing the articles, they had seemed to him important enough to warrant his going and checking a statement or two of Mr Dodd's and that he accordingly went to the spot and saw that the clump of trees had been recently turned over, and that on the rock there was a picture of the sword in iron-rust, just as it had been lying. He hunted for any impression of the axe on the rock, but evidently a little dirt had been between the axe and the rock and there was no staining from the axe. Later still, I received a written statement from Mr Feltham, who had seen the things lying on the edge of the trench.

'Professor T. F. McIlwraith, of the staff of the Royal Ontario

Museum, went up to Beardmore as soon as possible, and Mr Dodd took him to the site. After some hunting, a scrap of metal was found where the earth was first thrown out. This could very well be a part of the boss of the shield, and later another small scrap was found, which also could be from the thicker edge of the boss.

'The weapons were treated by an electrical process as soon as we acquired them. This drives off the oxygen and so arrests rusting. Photographs of them were sent to a number of well-known Norse archaeologists, who agreed that the sword and axe could well be of the same period, and that from 900 to 1000 would be a general statement of date. Dr Matthias Thordarson, director of the National Museum of Iceland, illustrates a similar sword and axe in the Vinland Voyages and dates them 1000.

'While we were getting ready to publish a statement, an article appeared in a Winnipeg paper, from a man who had heard the story in Port Arthur. Then came a statement to a reporter claiming that Mr Dodd had not found the weapons as he had described, but that they had been found by him in a house that he had rented, in which they had been left by the owner of the house, a Norwegian. Immediately investigations were made in Port Arthur, and it was found that Mr Dodd had not moved into that house for eighteen months after the time he had been showing the weapons to various people. Eventually the man who had told this story to the reporter said that he had meant it only as a joke, and signed a statement that he had never seen the things.

'Now we are met with the seemingly incredible fact that a Viking was buried near Lake Nipigon. The Indian habit of sharing articles of value makes it inconceivable that three such unusual objects would have remained together if traded from tribe to tribe either from James Bay or the Labrador shore. The idea has always been that the Viking visits, as described in the sagas, were to the Atlantic coast of America, and there have been published many papers discussing which part of the coast was reached. It does not seem to have occurred to anyone that the Vikings may have come into Hudson Bay and down to James Bay, and from there southward and westward to Lake Superior, as this find suggests. There is a well-known Indian trade route from James Bay to Lake Nipigon. From there the most obvious route to Lake Superior is down the Nipigon River. An alternative way is up the Blackwater River to Lake Nakina, from which a portage leads to the headwaters of a stream flowing southward to Lake Superior. The

Blackwater makes a tremendous loop eastward, and about seventy miles of river and rapids can be avoided by portaging from a spot a few miles above the mouth of the river to Lake Nakino, by way of a small unnamed lake. The Viking weapons were found close to this short cut '.

TOGGLE PINS IN CYPRUS (PLATE II)

The two ' toggle ' pins published in this note were found in Tomb 84 on site A at Vounous, a necropolis on the north coast of Cyprus, in the spring of 1937.

The grave contained the remains of two bodies; one occupied the centre of the chamber, lying parallel to the door: the pins were in position, one on each shoulder, with the points upward towards the head. No further data could be gathered as the tomb had suffered severely from hydraulic action. The second body had been placed to the left of the stomion. Both corpses were contracted in the usual early attitude.

It is impossible to separate the pottery on stylistic grounds, and as most of it was in a single state of preservation it would be reasonable to attribute the whole group to one burial, that in the centre. The second body may have been a primary burial, or possibly contemporary with the first.

The pottery lacks any pieces distinctive of E.C. Ib, but certain features link the group with tomb 82A, which is probably to be placed late in E.C. Ia or early in Ib. This would indicate a relative position late in Ia, but rather earlier than tomb 82A.

In the light of tomb 164B, from the same site, it is possible to fix an approximate period for the change from E.C. Ic to IIa. Prof. Albright has suggested in a letter to the writer that the absolute date of this grave should be given a lower limit of 2500 B.C. rather than the date in the 27th century proposed in *Palestine Exploration Quarterly*, July 1939. In view of the mainland evidence on which this alteration is based, it seems safe to accept this lower limit. A consideration of the ceramic development and the number of graves on site A would indicate a minimum date of the late 28th to the early 27th century B.C. (with a mean of 2700 B.C., but it is not impossible that the average should be raised in connexion with any alteration of the minimum date of tomb 164B) for E.C. Ia, so that tomb 84 could be placed in the early 27th century.

Tomb 84, no. 29. ' Toggle ' pin ; nail shaped with a convex button head. Lightly engraved decoration above and below the piercing. A single strand wire appears to have been inserted through each side of the piercing and twisted, thus giving two independent threads looped through the piercing. Length 14.3 cms. (PLATE II).

Tomb 84, no. 30. Details as no. 29. A single wire has been inserted through the piercing and then twisted and wound at least once round the shaft below the piercing. Length 14.35 cms. In each case the piercing has been cast with the pin. (PLATE II).

Evidently one type of Early Cypriot garment consisted of a cloak fastened on each shoulder with a pin : at Vounous three other bodies were so clad, two of them with the pins in the same inverted position.

These two pins, unique at Vounous, belong to Madame Henschel-Simon's[1] group I, ' Nail with semi-globular head ' type. This class of toggle is interesting both chronologically and geographically, but it is possible that once again a metal type has been invested with undue significance. Madame Henschel-Simon records specimens from Megiddo,[2] Hammam,[2] Troy[2] and Cyprus ;[2] to her figure 7 could be added the pins which she illustrates from Byblos,[3] Agha Evlar[4] in the Talysh, and Tepe Gawra,[5] while a specimen from Chagar Bazar appears to belong to the same group, together with a fragment from Alişar and pins from Tell'As, Ras Shamra, and further examples from Byblos and Cyprus.

The two Megiddo pins[6] come from Tomb 1014B, dated by Madame Henschel-Simon to the transition between E.B. and M.B., but by the excavators to M.B. I ; on Albright's chronology[7] this would give a date between the 21st and 19th centuries B.C. Wright[8] would place the tomb in the earliest group of M.B. I remains, roughly about the

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[1] *Quarterly of the Dept. of Antiquities in Palestine*, 1936–7, vol. VI, 173.

[2] Ibid. p. 181, fig. 7. [3] Ibid. p. 177, fig. 5b.

[4] Ibid. p. 178, fig. 6e. [5] Ibid. p. 183, fig. 8.

[6] Engberg and Shipton, ' Notes on the Chalcolithic and Early Bronze Age Pottery of Megiddo', p. 76, fig. 20 A, B. Guy and Engberg, ' Megiddo Tombs ', p. 169, nos. 2 and 3 ; plate 102, nos. 9 and 10. But the best illustration is that used by Madame Henschel-Simon, cf. *D.A.P.* VI, pl. LXVII, no. 1.

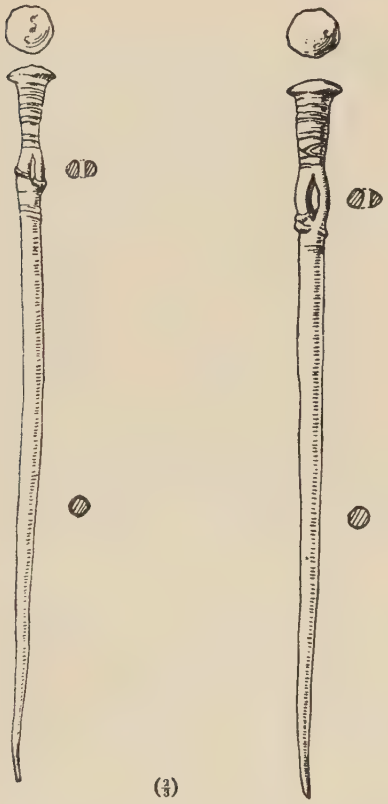
[7] *Annual of the American Schools of Oriental Research*, XIII, p. 98 ; corrected in the text to include I and H only.

[8] *Bulletin of the American Schools of Oriental Research*, no. 71, p. 32.

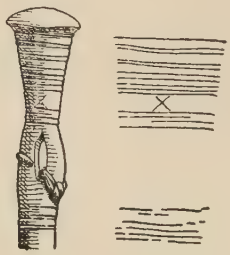
21st century; Madame Henschel-Simon's absolute date of about 2000 B.C. cannot be far wrong.

The single example in the Byblos deposit[9] can be placed in the 19th century B.C. according to Albright.[10]

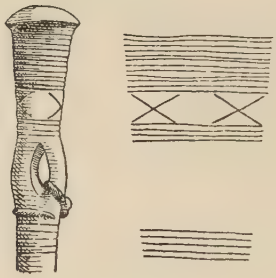
The Hammam[11] pin is loosely dated to the beginning of the middle bronze age, and should therefore fall within the general limits of the Megiddo and Byblos specimens.



(⅔)



T84, no. 29 (½)



T84, no. 30 (½)

As Madame Henschel-Simon points out[12], this chronological homogeneity is disturbed by the occurrence of the type at Tepe Gawra; Speiser[13] gives the statistics as 3 in Gawra VII, 19 in VI, 2 in V, 2 in IV and 1 in III, yielding an approximate chronological range from the turn of the 4th millennium to the middle of the second, a span of some 1500

[9] *Byblos et L'Egypt*, p. 123, pl. LXIX. But the type is commoner than Madame Simon supposes :—*Syria*, X, pl. XXXVII; Dunand, 'Fouilles de Byblos,' pl. LXIX and CIV.

[10] *AASOR*. XVII, p. 25. [11] *Liverpool Annals of Archaeology*, VI, 87 ff, pl. XXI.

[12] *Q.D.A.P.* VI, p. 183. [13] *Excavations at Tepe Gawra*, I, 114.

years; the period of maximum popularity would then lie between 3000 and 2500 B.C., half a millennium earlier than the Megiddo specimens. Speiser's date receives confirmation from a pin from Chagar Bazar,[14] site B.D. level 3, dated by Mallowan between 2900 and 2500 B.C.

The Trojan[15] toggle has been attributed to Troy II–V on account of its supposed Cypriot analogies; such a wide period ending in the 19th century B.C.[16] cannot be far wrong, but the evidence is subject to confirmation from Prof. Blegen's recent excavations.

The fragment from Alişar[17] is attributed to stratum I but Von der Osten's subsequent remarks[18] nullify its value; no precisely similar type seems to have been recorded for the period of the Hittite Empire, as D 44[19] appears to have a swollen head. In any case the loose attribution employed prevents any usefully precise knowledge of the occurrences of Toggle types at Alişar.

Syria, 1932, vol. XIII, pl. XXXIX illustrates what is apparently a pin of this class, from Tomb I at Tell'As. Du Buisson (*Syria*, XIII, 187) dates this group to the first half of the second millennium, but Albright (*AASOR*, XIII, pl. 67, par. 13) followed by Wright (*BASOR*, no. 71, p. 33) raises this to between the 24th and 20th centuries B.C. If the upper limit be accepted this specimen fills the gap between Gawra VI, Chagar Bazar and Megiddo, in the geographical and chronological distribution of Type I.

Hančar[20] has proposed a late date for the Caucasian and Talysh[21] forms, as late as the end of the second millennium B.C.; Madame Henschel-Simon[22] reacts against this and is inclined to raise the date. Apart from the slight but markedly noticeable morphological differences, if Hančar is correct in deriving the 'Cyprische Locknadel' from the south, the late survival of the type I class at Tepe Gawra provides a chronological link. In any case the obscurity of Caucasian chronology reduces the importance of the Agha Evlar pin.

Since the earliest examples antedate 2500 B.C. in Assyria and on the Habur, it seems likely that this form of toggle spread southwest, reaching

[14] *Iraq*, IV, 132, no. 5, fig. 12, no. 5.

[15] Schmidt: *Schliemanns Sammlung*, no. 6411, p. 254. Dörpfeld: 'Troja und Ilion', I, p. 357, fig. 295. [16] *American Journal of Archaeology*, 1934, p. 230.

[17] *The Alishar Hüyük; seasons of* 1928 *and* 1929, I, p. 60, fig. 69, no. b512.

[18] *Megiddo Tombs*, p. 169.

[19] *The Alishar Hüyük; seasons of* 1930–32, II, 258, fig. 283.

[20] *Eurasia Septentrionalis*, VII, 113 ff.

[21] Also illustrated by Hubert, *Syria*, VI, 24, fig. 7. [22] *Q.D.A.P.* VI, 180.

Megiddo by 2000 B.C., but continuing in use at Byblos until the 19th century B.C. and in north Syria until the same general period, for it occurs at Ras Shamra in Niveau II (*Syria*, XVII, p. 133, fig. 19 F). Northward it may be that the Talysh pins and the Alişar example are derived from late Assyrian prototypes.

One independent area has not been examined—Cyprus. Vrysi tou Baba Tomb 313A, no. 115[23] included a toggle of type I. Sjoqvist has dated the deposit to the middle of E.C. III, Ie, IIIb. Cypriot chronology is relative rather than absolute, but a date in the 23rd century B.C. would not be far wrong; yet this pin is antedated by the two Vounous specimens by four to five centuries, so it is necessary to admit that in Cyprus, as in Mesopotamia, the form had a long currency. An imported pot of E.C. Ic[24] date which Prof. Albright has suggested to the writer is Phoenician rather than Palestinian, points to a source of contact with the areas using this toggle type; it is probably the chance of excavation that examples have not been recorded in an earlier context at Byblos and other Syrian coastal sites. Nevertheless these examples must share with the Gawra and Chagar Bazar pieces the chronological primacy in type.

A slight variant of the type is Cesnola Collection no. 4680:[25] Myres indicates a date before late Cypriot, but it would seem that the low centre of piercing may indicate a middle Cypriot date—both the Vounous and Vrysi tou Baba specimens are pierced relatively high up the shaft; the date is confirmed by the apparent occurrence of the type at Vrysi tou Baba in tombs 8 (uncertain date, 15 (M.C. II), 47 (M.C. IIa) and 50 (M.C. IIb) excavated by Prof. Myres and Mr Markides before the first German war. Perhaps with this class go *Ath. Mitt.* XI, beil 1, no. 15, from Levkosia (Nicosia) and therefore presumably from Ay. Paraskevi: however this piece may be coupled with Vrysi tou Baba tomb 35 (Cyprus Museum negative G 635), to stand between type I or its modifications and the mushroom-head toggle, so common in Middle Cypriot times (Tomb 35 would appear to date to M.C. II).

The pins from Vrysi tou Baba tomb 318[26] are apparently examples of class I with a slightly modified head. It is not certain that they should be dated to E.C. II[27] as they very possibly belong to the later burials.

[23] *Swedish Cyprus Expedition*, I, p. 93, pl. XXIII.

[24] *Palestine Exploration Quarterly*, op. cit.

[25] Myres, *Handbook of Cesnola Collection*, p. 475.

[26] Tomb 318, no. 24, *S.C.E.* I, p. 127, pl. XXII and CXLIV (no. 4).

[27] As assumed in *Megiddo Tombs*, p. 169.

In any case the pottery seems to indicate a date not earlier than E.C. IIc. A similar pin occurred in tomb 28, which seems to belong to E.C. III.

Thus in Cyprus the type runs from E.C. Ia to E.C. IIIb with variants running down to M.C. IIb (19th–18th centuries B.C.). Outside Assyria and the Habur this distribution is unique, yet as in those areas this class of toggle has a marked chronological priority, and as it is known that by E.C. Ic Cyprus was in contact with the eastern mainland, it is difficult to escape the conclusion that this pin form was ultimately derived from the Habur by way of Phoenicia.

Gotze[28] may be correct in deriving the Trojan pin from a Cypriot model; there are some indications that after the close of E.C. I Cyprus had cultural contacts with western and southwest Anatolia, and the type is absent from Kusura, which is roughly midway between Alişar[29] and Troy.

JAMES R. STEWART.

NOTE

Since this note was written Miss Grace has published (*American Journal of Archaeology*, 1940, XLIV, 104) a tomb-chamber excavated by the University of Pennsylvania Museum Expedition at Lapithos (Cyprus) in 1931. This tomb, not yet entirely published, contained a Middle Minoan Ia pot in an E.C. IIIa context. This indicates that E.C. IIIa cannot have commenced before the 22nd century B.C., and must have ended later than 2100 B.C., the date conventionally adopted for the transition from E.C.–M.C. This necessitates a correction in the note: E.C. IIIb cannot be placed as early as the 23rd century, but should lie in the late 22nd or early 21st century B.C. It is not yet possible to evaluate the effect of this new evidence on the Vounous chronology, but the writer must concede that in general any lowering of the date for the end of E.C. makes it less necessary to maintain a high date for E.C. I. The possibility should therefore be born in mind that Vounous tomb 164B should be dropped from *c.* 2500 B.C. to the late 25th century: this would bring down the date of the two toggles from the 28th-27th century to the 27th-26th century.

The report on the Tarsus Excavations of 1938 (*American Journal of Archaeology*, 1940, XLIV, 72, fig. 21), shows that the toggle of type I was in use at Gözlü Kule somewhere about the 20th century B.C.

[28] *Troja and Ilion*, I, op. cit.

[29] The similar pin from Alaca Höyük (*Türk Tarih Kurumu, Belleten*, 1937, I, 238, fig. 5, no. 28, and *Alaca Höyük Hafriyatı*, 1935, pl. LXI, 28), appears to have had the hole drilled after casting. The period would appear to be of the Hittite Empires.

Reviews

SAGGI DI ESPLORAZIONE ARCHEOLOGICA A MEZZO DELLA FOTOGRAFIA AEREA. *By* Giuseppe Lugli. *Roma : Istituto di studi romani*, 1939. *Price not stated.*

This publication is the outcome of the persevering efforts of Professor Lugli to introduce archaeological air-photography into Italy. In 1938 he addressed the National Congress of Roman Studies on the subject, with the result that it was recommended that definite action should be taken, following the examples of England, France (in Syria), and Germany. A commission was appointed, the first results of which are published in the present work. Amongst the objects to be pursued were enumerated the following :—ancient cities, centuriation and ancient cultivation generally, Roman and pre-Roman roads, submerged harbours and moles, lake-dwellings, camps and forts, burial-places.

The present publication deals with the city and port of Anzio, the region between the Alban hills and the sea, and the Appian way in Apulia.

Antium, a Volscian city which became a seaside resort in the later Republic, was deserted in the Middle Ages and only resettled in recent times. Its study, with the classical remains largely buried under buildings of the last four hundred years, presents the same difficulties as many other ancient sites in Italy. One of the two main problems set to the investigators was solved. The lines of the harbour with its single entrance and the lighthouse at the end of the longer quay, can be deduced with certainty from the air-photograph now published. In the ' Villa of Nero ', a tangled complex of buildings of many periods, the emergence of a great exedra with two concentric walls facing the sea, is a result obtained more easily than could have been done by a ground survey, where differences of level and modern buildings disguise the true lay-out of the site. Beyond this the results throw little additional light on the topography of the city. That the seaward end of the vallum had been disturbed beyond possibility of recognition was indeed foreseen, and the failure to map the exact course is not serious. The lack of any indication of the original settlement is more disappointing. The cemetery investigated by Antonielli (*Studi Etruschi*, 1, 40) is among the earliest Iron Age sites in this part of Italy. It seems unlikely that the original settlers occupied the whole area within the existing vallum, and we might have hoped for some clue to the site and extent of the primitive village.

The evidence of centuriation, as here presented, is less easy to appreciate, and it would have been helpful if explanatory diagrams of each plate had been given, as in the case of plate II*. Plate IV shows a system of rectangular fields; but these present differences of tone which, so far as one can judge from the reproduction, seem to be due to vegetation. The field-boundaries are very sharp, but there is no visible sign of lyncheting. The fields, in fact, present all the appearances of quite recent cultivation. It is possible, of course, that modern cultivators have everywhere adopted the ancient field-boundaries, or subdivisions of them; but to establish the presence of centuriation beyond cavil it would be desirable to publish air-photographs of an area that had never been re-cultivated since its original abandonment, or where modern cultivation did not respect the old boundaries.

On the technical side it should be said that the photographs appear to have been taken too high. It is not possible, on the reproductions, to interpret details as one would wish, because of the smallness of the scale (plates IV to VI are 1 : 19,000). A few photographs on a very much larger scale (say 1 : 2000) would have helped considerably. It must always be realized that the art of securing good archaeological air-photographs is one that demands special study, just like any other art. It is necessary to study the best lighting conditions (height and angle of the sun), the best angle of view (generally that looking *into* the sun), the best time of year and day, the best height; and different sites have to be treated differently in accordance with the special features of each. It is not possible for a person who is entirely ignorant of these necessities to secure good results in the air except by chance; they cannot be obtained by pressing a button. Good results can only be guaranteed when the person who takes the photographs is himself an archaeologist. O.G.S.C. *and* C.A.R.R.

GLASS VESSELS BEFORE GLASS-BLOWING. *By* Poul Fossing. *Copenhagen: Ejnar Munksgaard*, 1940. *pp.* XVI, 150, *and* 109 *text-figures.* 12 *Kr.*

Scholars have long voiced the wish that someone would write the story of sand-core and other early glass vessels, and it is curious that we have had to wait so long for its realization, for the subject is not unattractive, and the material exists in plenty in museums and private collections. But the long wait has not been in vain: this book is so good that it will remain the standard text-book for many years to come.

Dr Fossing has spared neither time nor pains in following up every clue that would guide him on his way. He has been able to extract a quite surprising

* But even here the diagram does not face the plates, so that reference from the one to the other is not as easy as it might have been made.

amount of knowledge out of the all-too-scanty remarks about glass in excavation-reports and the like, and the result is that he is able to divide the sand-core glasses into four clearly distinct chronological groups : (*a*) second half of second millennium B.C. ; (*b*) 6th to 4th century ; (*c*) 4th to 3rd century ; (*d*) 2nd century and later. Beside the sand-core glasses, which occupy the bulk of the story, he has brought together a number of block-cut and mould-pressed specimens of various dates, which prove that those techniques were known far earlier than many of us either realized or suspected. Yet the numerical evidence of the finds clearly shows that sand-core held the field for centuries, and that neither cutting nor mould-pressing was anything but a rarity before the later Hellenistic period.

The pictures, though printed on the text-paper, come out well ; the printing and production are adequate and scholarly ; and both author and publisher are to be congratulated on a work which not only fulfils a need, but does so at a price within the means of all of us. D. B. HARDEN.

FIGURINES FROM SELEUCIA ON THE TIGRIS : discovered by the Expeditions conducted by the University of Michigan with the co-operation of the Toledo Museum and the Cleveland Museum of Art, 1927–32. *By* WILHELMINA VAN INGEN. *Ann Arbor : the University of Michigan Press ; London : Humphrey Milford, Oxford University Press*, 1939. *pp.* IX, 374, 93 *plates and* 2 *plans.* 5 *dollars.*

Among the objects recovered during the excavations conducted at Seleucia during the seasons 1927–28 and 1931–32 by the American Expedition was a large number of figurines mostly of terra-cotta, but including more than 150 of bone and nearly 100 of alabaster, marble or plaster. Most of these were found in what was probably a temple precinct, and in a residential district, and occurred in all the four levels excavated. They appear to have been made on the site, but no workshops were discovered and only a few moulds.

These figurines have now been studied by Wilhelmina van Ingen, and catalogued in the volume under review.

The figurines are grouped by materials, and within each group by types ; no less than 676 pieces are illustrated in the 93 collotype plates placed at the end. The description is full, references to the general type are given at the beginning of each section and repeated in the case of individual pieces, where appropriate. There is also a full bibliography.

In an introduction of 52 pages the author discusses the technique, the meaning and use of the various types and the costume ; a special section deals with the bone figurines, and in a final section the style and relations with Parthian Art are considered.

Some points of special interest may be noted.

Only a small area of the Seleucid Level having been excavated, it is not yet possible to say what types appear for the first time in the Parthian period, but, on the evidence so far obtained, it cannot be shown that Greek influence predominates in the earlier levels, and in all the three upper levels Greek and Parthian styles persist side by side (p. 7).

Of the alabaster figurines, usually dated, on account of their Hellenistic character, to the Seleucid period, far the greater number were found in the two upper levels, datable to the first and second centuries A.D. (p. 7).

Oriental and Greek types are throughout parallel, but there is a merging in the two upper levels, Greek types being done in Oriental style and vice versa (p. 8).

One plaque (No. 495) is remarkable for its affinities with the Samian style.

The evidence of the bone figurines is noteworthy. None occurred in the Seleucid level, and, of the remainder, the highly conventionalized types were predominant in the lower Parthian levels, outnumbered the naturalistic in the middle, and in the upper level were less common than those. Thus the trend was away from the conventionalized to the naturalistic, not vice versa. Later examples of these conventionalized figurines have been found at other sites and form a link with certain Coptic bone figurines, and, in view of the admitted influence of Mesopotamian design on Coptic and Early Christian Art may be another evidence of connection between the Tigris Valley and Egypt (p. 46).

The general conclusion reached by the author is that Parthian Art, as exemplified by the figurines was eclectic but not so deeply Hellenized as has been assumed; that actually it was the re-emerging native tendencies of Babylonian Art that received a fresh impulse as the result of the Parthian Conquest, that this stylistic movement was part of a larger movement which was taking place throughout the Mediterranean area (p. 51); and that the Parthians were determiners of direction rather than originators (p. 52).

These unpretentious objects, though for the most part lacking in merit, have their place in helping to build up a true conception of the intricate artistic history of the Near East in a transitional period. This careful and orderly presentation of the material is therefore most welcome.

The only criticism that suggests itself is that, in the plates, in spite of the evident care taken with them by photographer and printers, details frequently cannot be made out, and it must be recognized that collotype is not the most suitable medium for representing plastic objects. On p. 12, 10th line from end, LXXVII should read LXVIII; p. 17, 3rd line from end XXXVI should read LXXXVI; pl. LXIV, no. 109b should read 1097 ? *ibid* no. 1106 should read 1105 ?

W. A. HEURTLEY.

THE FAUNA OF ANCIENT MESOPOTAMIA AS REPRESENTED IN ART. *By* E. Douglas van Buren. In *Analecta Orientalia* 18. *Pontificum institutum biblicum, Rome,* 1939. *pp.* 113 *and* 23 *plates.* 130 *lire.*

With remarkable industry the author has collected all that is known of the artistic representation of animals in ancient Mesopotamia, and has arranged her material according to period and cultural provenance. Her work will long form the basis for all future research in this field. She seems to have intended her book primarily for archaeologists ; but it has a far wider scope, and is of the highest importance to students of cultural history, zoologists, palaeontologists, students of domestic animals, etc. These, however, would find it more easy to use if a list were given of the abbreviations employed for the numerous periodicals quoted, which are naturally familiar to the Assyriologist but not necessarily to specialists in other branches of learning.

The author is not herself a zoologist ; but she has worked with remarkable industry in what is to her mainly an unfamiliar science, acquiring in the process an experience which has generally brought her considerable success in the new identifications which she makes : e.g. when she interprets certain figures as those of jerboas (fig. 29). On the other hand, she recognizes and rightly emphasizes the fact that not every representation can be identified : e.g. certain small creatures, some among which she is probably right in taking as martens, weasels or the like (figs. 20–22), and which appear to have borne a certain cult-importance, to judge from their frequent similar representation.

Elsewhere one cannot agree with the author, as for instance in her interpretation of certain pithecoid figures as gibbons (*Hylobates*) : the gibbon is found only in Further India. Even if we can assume the intermediate influence of the Old Indus-culture (as is admittedly justified in other cases, e.g. the rhinoceros), there is still no evidence for the gibbon. Likewise, in my view, the evidence for *Antilope cervicapra*, today exclusively domiciled in India, seems at least very uncertain. The sections dealing with antelopes and gazelles seem particularly to suffer from the fact that the author is not a zoologist ; it would have been a good plan to have consulted a trained specialist on these and other points. Such things could then have been avoided as the distinction which Mrs Van Buren attempts to make between panther and leopard, *Felis chaus* and *Lynchus chaus*. Small mistakes like this, however, can never be wholly avoided : whether the writer of such a book is zoologist or archaeologist, the specialist in the one or the other is bound to find this or that error, unless his advice has first been sought.

But these trifling objections must not be allowed to obscure the value and importance of Mrs Van Buren's work. We are especially grateful for her careful attribution of the finds to definite cultures and epochs : this enables us to

ascertain the changes among the successive Mesopotamian peoples in relation to their fauna, and so to establish important cultural conclusions and to realize changes among the fauna and consequently of climate, with all that this implies as regards culture ; finally light is thrown upon the status and history of domestic animals and upon the evolution and acquisition of individual breeds. However, we must not infer that a particular animal was lacking in a particular period simply because it is not represented in the art of that period : the artist's silence may have been due to other causes, e.g. religious grounds. Mrs Van Buren rightly draws attention to the lack of elephant-pictures before 800 B.C. ; the only such representation from Tell Asmar is either the result of old Indian influence or an entire importation. The same is true of a picture of a rhinoceros ; the hare too is not found among the representations of the earliest period, but one cannot draw any definite conclusions from this. If inferences are to be based upon these animal representations, extreme caution and critical care is necessary ; and it is exactly in this way that the author is so helpful, not only with her material but because of the manner in which it is set out. The importance of the book for the history of domestic animals may be seen from the sections on the cat, sheep, dog, horse, etc. In the part dealing with the horse, special importance attaches to fig. 32, because it admits of no possible doubt, and to the representation of a rider in fig. 36.

If the interpretation of the smaller mammals presents difficulties on all sides, the same applies still more to birds and the lower animals. The material available for these is not so comprehensive as it is for mammals—thus the latter occupy 82 pages of text, while the former have only 30, of which 14 concern birds and the rest are devoted to reptiles, frogs as the only amphibians, fishes, flies, grasshoppers and their affinities, spiders, scorpions, cuttle-fish, crabs and starfish. Snails are not mentioned. M. HILZHEIMER.

DIE LANGOBARDISCHEN GOLDBLATTKREUZE AUS DER ZONE SÜDWÄRTS DER ALPEN. *By* SIEGFRIED FUCHS. 1938. RM. 9.80.

The Lombardic gold-foil crosses of the Migration Period, a class of antiquities widely scattered, insufficiently known, and often despised, are here for the first time subjected to comprehensive study. The author, who confines himself to the Italian material, has compiled a catalogue of 187 examples, a number far greater than any previous list.

The first important step is a classification of the crosses according to technical and stylistic characteristics, which yields interesting results from the point of view of distribution. Certain types of design are found to be associated with some particular region. But the main point is that the crosses with ornaments produced from wooden press-moulds, which include all those with

Teutonic animal and interlace patterns, are found almost exclusively in northern Italy and in the neighbourhood of Benevento, while the crosses with much simpler designs, produced from stamps, mostly occur in central Italy. Dr Fuchs suggests that the Lombards in central Italy, being in closer touch with Roman and Byzantine art, did not cling to their own ornamental designs in the same way as the more secluded communities in the north and south.

The first group, which is of course the most important one, can be subdivided according to the manner in which the moulds have been applied. There are varying degrees of skill in fitting the pattern into the four arms of the cross. The author takes this to be a sign of gradual evolution and thus finds his first criterion for dating the crosses. Other chronological clues are provided by two crosses with inscriptions convincingly deciphered as the names of King Clef (572–584) and King Agilulf (590–615); by crosses with coin impressions, and others belonging to dated tomb-groups; and finally by crosses which bear a stylistic resemblance to other and better known classes of objects such as fibulae, coins, and reliefs in metal or stone.

With the help of such chronological data Dr Fuchs establishes some general facts concerning the development of the crosses. One is that in the early period the shape of the Greek cross is the only one known, while later the Latin type is also frequently used. Another general rule is that all the richest and most fantastic examples of Teutonic ornament are found on the early crosses belonging to the sixth and the beginning of the seventh century, while later on, as the artists are more and more influenced by their southern environment, one finds clearly recognizable human faces as well as classical foliage ornament.

This result leads on to some rather dangerous generalizations. The evolution of the crosses is interpreted by the author as a fusion of Germanic and Mediterranean traditions, and since it is from that fusion that medieval art was born, the crosses are regarded by him as marking a turning point in European art history. It is undoubtedly true that in the evolution of medieval style the amalgamation of classical and barbaric elements plays an important part. But what we see on these crosses is quite a different thing, namely the Teutonic tradition gradually giving way to southern taste. It was in the Saxon art of the eighth century that the two currents first began really to interact upon each other, while a final synthesis was not reached before the Carolingian, or even the early Romanesque, period. The author overrates the importance of his subject. He thinks that from the peak which he has climbed he can see the whole of early medieval art, whereas in fact the view is confined to a small part of the art history of the Dark Ages.

As a study of this episode, however, the book is important and useful. Perhaps the most difficult problem which the author had to face is that concerning

the origin of these crosses. The Lombards of the pre-Italian period, although already christianized, did not have them. But contrary to the view hitherto held the production begins very soon after their arrival in Italy. Yet Dr Fuchs is disinclined to regard the not very numerous gold-foil crosses of the Byzantine sphere as their prototypes. The fact that there are from the outset regional differences in the technique and ornamentation of the Italian finds also appears to indicate that there was no fixed tradition imposed on the Lombards from outside. Dr Fuchs shows that most of the crosses must originally have been sewn on garments, and there is reason to believe that in this position they were not only part of the tomb-furniture but were actually worn by living people. He suggests that they are an original creation of the Lombards in Italy, occasioned by their gradual conversion from Arianism to Catholicism and worn by the neophytes as a kind of badge. E. KITZINGER.

A HISTORY OF SPANISH ARCHITECTURE. *By* BERNARD BEVAN. *Batsford*, 1938. 21*s*.

No general account of Spanish architecture has appeared for some 90 years, so that the publication of this book could not fail to be of value. But Mr Bevan's wide knowledge and careful scholarship make it a work of first-class importance. No claim is made to conprehensiveness, but as a ' condensed evolutionary study ' of a curiously chaotic history it is intelligent, clear, and readable. He has wisely restricted the chapters dealing with the better known aspects of the subject—Mohammedan, French-Castilian, and Herreran,—in order to give more prominence to pre-Romanesque, Romanesque, and Mudéjar, to the Plateresque of the Golden Age and Baroque, and a good chapter on the castles of Castile.

Several factors make the study of Spanish architecture particularly difficult. Mr Bevan quotes Lampérez's phrase : ' The Art of Spain is alluvial '. And it is characteristic of architecture in Spain that no national style was evolved. The lack of coordination between Christian states in the Muslim period is echoed throughout later times by a conspicuous lack of uniformity in architectural style. Different parts of the country are subject to different foreign influences, and the fancy of individual architects, so that it is only under the Herreran ' dictatorship ' and the neo-Classical Academy that anything like uniformity appears.

This is further complicated by the extreme conservatism of Spanish architects. Thus Romanesque portals were built at Tarazona and Zorita del Páramo in the 16th century, Gothic was still alive in the 18th, and Spanish Baroque flourishes in the New World today. This conservatism also results in the adoption of innovations without a true understanding of the principles of their

construction. Thus octopartite vaulting is adopted without its fundamental mechanical principles, e.g., the substitution of a horizontal for a vertical thrust, and as soon as French architects disappear, Spain reverts to the heavier principles of Romanesque. And Plateresque misunderstands Florentine ornament and misuses Italian construction because no attempt is made to understand Renaissance ideals, and the architect chooses to think of an exterior as a *retablo*.

But Mr Bevan has given us a clue for this maze. Particularly interesting are the chapters on the Asturian churches and on Mudéjar. There is some account of the fascinating baroque of the New World; we wish it could have been longer. Problems such as the origin of the dome with pendentives and the horseshoe arch are discussed briefly but carefully, though in the latter case Mr Bevan has not been able to avoid some obscurity in dealing with a very difficult question.

The plates and diagrams are excellent, and there are some useful maps. The captions beneath the plates show an unfortunate tendency to be influenced by the style of certain picture-papers. And some readers may not know the meaning of such terms as *miḥrāb* and *maqsūrah*. But it is an excellent book.

MERIC DOBSON.

JERNALDERS BOPLADSER I HIMMERLAND (Settlements of the Iron Age in Himmerland). *By* GUDMUND HATT. *Aarbøger for nordisk Oldkyndighed og Historie* (Annals of Nordic Archaeology and History). Copenhagen, 1938, pp. 119–226 with a *résumé* in French: *Stations de l'âge du fer en Himmerland, pp.* XXXIII–XLVII, *illustrations and* 12 *maps.*

Professor Gudmund Hatt's careful research into the settlement and agriculture of the Iron Age in Jutland has provided highly valuable contributions to Danish archaeology. His researches began in 1922, when, as an Assistant-keeper of the National Museum and working in conjunction with the late Hans Kjær, he carried out the now famous excavations of a settlement of the Iron Age near Ginderup in northwest Jutland.[1]

About 1930 he also began a careful and wide research into the traces of agriculture in the Iron Age still to be found in the heaths of Jutland. We must be especially grateful to him for this work, for it was completed just before the tractor came to destroy the remaining traces.[2] Since then he has been successful in proving more than one hundred examples of the Iron Age system of agriculture scattered over the Jutland peninsula, about one-third of which have been measured and mapped out.

[1] See G. Hatt, *Jernaldersbopladsen ved Ginderup i Thy* (A Settlement of the Iron Age near Ginderup in Thy), Copenhagen, 1935, and ANTIQUITY, 1937, XI, 162–73.

[2] Idem. 'Prehistoric Fields in Jylland', *Acta Archaeologica*, II, 1931.

Meanwhile he continued his investigations into the settlements[3] and devised a special technique of his own. According to this, the measuring is done in sections of one square metre, but the excavation is done in layers proportionate to the size and shape of the settlement examined. Where formerly details found in an area of a few square metres were considered sufficient, today the shape and size of an entire layer are disclosed. If the dwelling was not burnt down, its walls are discovered by finding the edges of the clay floor, or by the changes in colour of the layers of earth. These edges and changes in colour were virtually overlooked by archaeologists of former days, who could not explain them for the reason that they did not uncover the entire building at once.

At the same time, in contrast to the old methods of excavation, Professor Hatt draws each stone and detail on the spot in its true dimensions. In this way later scientists can work with the plan of the excavation as well as they could do on the site. For the perfection of this method all that remains is a technical improvement in colour-photography sufficient to allow colour-films to be widely used in research. In Professor Hatt's plans all observations are included, no matter whether they can be explained or whether they fit into the picture formed by the archaeologist and based on his present knowledge. This prolongs the investigations, and necessitates the employment of scientifically educated workers for all excavation other than the task of removing the topmost layer of earth above a settlement.

A settlement is most frequently discovered by a plough striking layers of stones. In 1937 and 1938, however, Professor Hatt succeeded in finding two ancient settlements lying untouched in uncultivated heaths, and the publication under review deals particularly with them.

Of especial interest is the discovery of a village in Skørbaek, for here were found the sunken walls of four houses, which were inhabited by as many families, surrounded by arable land which must have provided them with their daily bread. The area was about one hundred hectares, but the inhabitants did not cultivate the whole. A few years ago the National Museum found here a settlement which, like the fields, dated from the Early Iron Age. Moreover, reliable evidence exists that there was once another settlement in the middle of the field near the area known as Brønd II (well II). In shape this field is an irregular quadrilateral, which was made by ploughing in two directions. The fields examined are surrounded by earth-banks, and on the slope by low lynchets.

[3] Idem. *To Bopladsfund fra ældre Jernalder* (Two Settlements of the Early Iron Age), Copenhagen, 1930, with a *résumé* in French ; *En Brandtomt af et Jernaldershus paa Mors* (A Burnt-out House of the Iron Age in Mors), Copenhagen, 1935, with a *résumé* in French ; 'Oldtidens Landsby i Danmark' (Ancient Villages in Denmark) *Fortid og Nutid*, 1936 ; *Landbrug i Danmarks Oldtid* (Agriculture in Denmark in Antiquity), Copenhagen, 1937.

The four house-sites, clearly visible on the surface, belonged to houses with walls made of earth. The roof was supported by two rows of posts about 2 to 3 ft. on the inner side of the walls. These dwellings date from the first century A.D. During the excavations four other house-sites were found, dating from the first century B.C., three of which had smaller posts supporting the roof. Between these posts the wall was made of clay, and the construction was therefore of an entirely different kind from that of the houses with earth-walls.

Researches made by Professor Hatt in other parts of Jutland show that about the beginning of the era here considered houses made of clay, which were comparatively cold and had little power of resistance, gave place to houses built of earth, which were warmer and better suited to the damp climate. It also became necessary to keep domestic animals in sheds. The houses were therefore divided into a habitable part with a clay floor, a fireplace and frequently a dais for sleeping or sitting on, and a lower part with the floor made of earth for the accommodation of animals. In one of the houses at Skørbaek the floor was found to have furrows on which partitions had been erected, forming stalls. As was customary, the houses were placed east and west. In the surrounding fields there are several burial-mounds ; one was excavated several years ago and found to date from the Stone Age. This place was inhabited continuously until the first century A.D., when the houses with earth walls fell to pieces.

At Østerbølle, south of Himmerland, traces were found of nine long-houses and three smaller buildings, all of which had earthen walls and belonged to the Roman Iron Age. Ploughing had destroyed some half-dozen of the houses here, three of which were examined by Professor Hatt. One, which had been burnt down, contained a large quantity of grain, mainly barley with some rye and oats. There were also remains of threshed barley, which must have been stored in the houses. On the floor there lay a heap of linseed mixed with rape-seed. A large vessel contained sprouting barley, probably intended for malt, and in the fireplace there stood a sacrificial vessel similar to others found in houses of the Iron Age in Jutland. Near the village a well was found and also a cemetery with seven untouched and a number of ruined graves.

A settlement in the district of Aars, a similar one with earth-walls at Engelstrup, and some more or less preserved at Malle Hede and Malle Degnegaard are described. The settlement in the last-named place dates from pre-Roman times and had clay walls with cross-beams fixed in them.

Professor Hatt gives a short review of the information so far discovered as to house construction in the Iron Age in Denmark and neighbouring countries. He points out that the buildings formed a uniform type, only minor exceptions being noticeable in their furnishing, shape and position. This proved a considerable cultural unity among the different settlements in Jutland.

This type is also closely related to the Swedish and Norwegian houses of the Iron Age and to a similar type in the British Isles, as well as to the houses at Warfs in the province of Groningen examined by Dr van Giffen.

The author announces forthcoming publications which will describe the settlement areas of the Iron Age in the extreme north of Jutland (Thy and Vendsyssel) and in the west. The greater part of the material has already been collected, and a considerable excavation near Nissum Fjord will be completed next year. We may therefore look forward to a comprehensive publication of general importance of the houses of the Iron Age in Jutland.

AXEL STEENSBERG.

HANDBOOK OF LATIN AMERICAN STUDIES. A selective guide to the material published in 1937 on anthropology, art, economics, education, folklore, geography, government, history, international relations, law, language and literature. *Edited by* LEWIS HANKE. *Harvard University Press, Cambridge, Mass.* [*Milford*] 1938. *pp.* xvi, 635. 4 *dollars.*

A very useful instrument for every student of Latin America. The title is clear enough as to the contents of the volume. Apart from the careful bibliographies, there are general statements on present problems in each branch of study, and special articles such as Martin S. Noel's ' History of Art in South America during the colonial period ', F. C. Lange's ' Musical studies on Latin America recently published ', and others. JACQUES SOUSTELLE.

LA CATHÉDRALE DE GRENOBLE, du ixe au xvie siècle. *By* PIERRE DAVID. *Paris : Picard*, 1939. *pp.* 121, 13 *plates. Price not stated.*

The cathedral of Grenoble has occupied very little space in archaeological or architectural literature and is indeed a building of only secondary importance and interest. Though it was greatly disfigured in the 18th and 19th centuries the author has succeeded in producing a scheme of evolution which has at any rate the merit of probability ; further investigation is necessary to prove it. According to M. David the cathedral occupies the site of the original cathedral in the north angle of the Roman enceinte of the city. It has from an early date consisted of two adjacent churches, the cathedral of Nôtre Dame and the church of St. Vincent flanking it on the north. This latter church has been set between the Roman city wall and a second Roman wall of hardly less thickness on the south ; the existing chancel is a structure of the 12th century. Nôtre Dame is a basilican church erected after the conclusion of a very unsettled period and from about 950 to 1020 : the original apse of this building was found in 1840. At the west end is a tower-porch assigned to the 9th century, of which the first floor formed the chapel of St. Michael. The upper part of the tower is built of

brick and is of the same build and material as the body of the cathedral of Nôtre Dame. A cloister and portal of which there are some remains were the work of St. Hugh, bishop from 1080 to 1132, and in the latter part of the 12th century the cathedral was vaulted.

Such, in brief, is the early history of this building as explained by the author. It is of very considerable interest as a contribution to the planning of these cathedral quarters, if we may so call them, which included two or more churches and a complex of episcopal buildings.

The illustrations might with advantage have been more numerous and the plans should have included an architect's plan of the building as it is. A.W.C.

EARLY GERMAN ART AND ITS ORIGINS. *By* HAROLD PICTON. *Batsford*, 1938. *pp.* XII, 148 *and* 320 illustrations. 21*s.*

An English pupil of Professor Strzygowski has presented us with a history of early German art ' from the beginnings to about 1050 '. Adopting his master's viewpoint, Mr Picton is naturally more concerned with the barbaric, abstract and ornamental elements in German art than with its classical inheritance. In his opening chapter, in which he traces the origins of Germanic ornament, he leads us far into the prehistoric period not only of European but also of Asiatic art, and there he finds the standards which he subsequently applies to architecture, painting and sculpture of early medieval times.

The main objection to this book is not that it is biased and one-sided—it must be admitted that the author has on the whole refrained from reproducing the more fantastic of Strzygowski's theories, especially his most recent ones—but that it is muddled and confused. Detailed observations, sometimes original, more often taken from other writers, do not make a coherent story and somehow the main point is always missed. He fails to give the English student that ' Überblick ' which he professes has been his aim to convey.

Nevertheless the book can be recommended on account of its wealth of admirable illustrations. These present a pictorial survey of early German art which both experts and laymen will be glad to possess. E. KITZINGER.

VENDEL I FYND OCH FORSKNING. Skrift utgiven af Upplands Fornminnesförening, under Medverkan av HOLGER ARBMAN, MANNE ERIKSSON, SUNE LINDQVIST *genom* OSKAR LUNDBERG. *Stockholm : Wahlström & Widstrand. Uppsala : Almqvist & Wiksell*, 1938. *pp.* 97, 2 *maps*, 26 *illustrations*. 3 *Kr.*

In August 1881 the churchyard at Vendel in Uppland, Sweden, was being enlarged, when a number of ship-burials were discovered. Under the direction of Professor Hjalmar Stolpe, no fewer than eleven were laid bare in 1881 and

1882, and in 1893 three more were found. In 1924 it was proposed to erect a monument to mark the discoveries; this was done in 1937, and a by-product has been the publication of this book.

There are six sections—The Vendel Finds, by Holger Arbman; a description of the 14 graves, from the classical account by Stolpe and T. J. Arne (1912); Vendel as Royal Seat and Farmers' Community, by Oskar Lundberg; the Finds by Sune Lindqvist (speech made at the dedication of the monument); Villages and Hamnas in Vendel, by Manne Eriksson; Vendel and the Oldest 'Dombok', by Oskar Lundberg. Summaries of four of these sections, in English, follow with supplementary material, not given in the Swedish text, on the relationship of Vendel to the Old English poem of *Beowulf*.

Vendel in Uppland has two interests—literary and archaeological—which are closely linked. In the first place, Ohthere in *Beowulf*, otherwise Ottar, king of the Swedes, was nicknamed 'Vendelcrow'; and in 1904 Knut Stjerna attempted to show (see his *Essays on Beowulf*, 1912, translated J. R. Clark Hall) that the Vendel referred to was Vendel in Uppland, not a site in Jutland, as had previously been thought. The Vendel finds, long unique in Sweden, seemed to support the theory of the importance of the site, and the possibility of its being Ottar's death place, while an 'Ottar's howe' is found in the neighbourhood. But the subsequent discovery of richly furnished graves at Valsgärde and Ultuna makes it impossible for us to go further than say that the family buried at Vendel were presumably chieftains of the district. The nickname 'Vendel crow' is still given to inhabitants of the district, just as nicknames, more or less cogent, are assigned to inhabitants of parishes in Britain (Orkney is a striking example). But whether the Vendel nickname is old may be doubted, so that further evidence is needed to make the connexion of Ottar with Vendel a certainty.

The archaeological features of the Vendel finds are of particular note, for we have a collection of ship-burials which have given their name to a period, and are characterized by the presence of a decorative style commonly called the Vendel Style. We have, too, an extraordinary example of continuity, for the burials may be dated in unbroken line from the 6th century to the 11th; and we get the impression of a race of petty kings, each following his father's way of life and of burial. Doubtless it was the increasing influence of Christianity in Scandinavia in the 11th century that put an end to a method of interment which had persisted, it may be, with but little change since the chambered barrow.

The contents of the graves show belief in a material future life, as evidenced by the skeletons of horses and by remains of weapons and other trappings, while skeletons of dogs, a hunting falcon, and even of a tame crane show how food was to be obtained. But to ensure the dead man's comfort, utensils were

included in the grave furniture, and an adequate supply of food, including in some cases even joints of meat or mutton.

The ornamentation falls into two types—human figures and animal motifs. This part of the work is particularly interesting, as showing the contacts which Scandinavia had with the South ; for it is made clear that certain of the ornamental types have affinities with Britain, others with the Rhine district, while the magnificent helmets which are the main glory of the finds are possibly modelled on the Roman cavalry helmet of the late Empire. Even half an Arab coin of the 10th century was found. And it must not be forgotten that many of the weapons, and of other trappings such as bridles, would be heirlooms, and therefore considerably older than the graves in which they were found.

The illustrations are not all new, some of them having occurred in Montelius; but they are excellent, and do not detract from the appearance and the value of this publication. ANGUS MACDONALD.

TROLDEBJERG, en bymaessig Bebyggelse fra Danmarks yngre Stenalder. *By* J. WINTHER. Tillaeg. Deutsches Zusammenfassung. Eget Forlag : Langelands Centraltrykkeri, Rudkøbing, 1938. *pp.* 27, 32 *illustrations, large-scale plan in end cover.* 7 *Kr.*

This is the supplement to a previous volume* by the same author, published in 1935, on the late Stone Age settlement at Troldebjerg, on the Danish island of Langeland. It continues the account of the excavations there during 1935 and 1936.

The fresh investigations brought to light more houses, mainly horseshoe-shaped, and many with pot-holes. There was also certain evidence of secondary settlement, in that one house was found on top of an earlier site.

The articles found included flint axes of various types, chisels, scrapers and arrows ; there were also a number of bone implements. Pottery was well represented by some 14,000 fragments, half of them ornamented. A favourite device was the ' thread line '.

From the later material certain details of the life at Troldebjerg become fairly clear. Evidently the settlers cleared the site of all but the largest stones, then felled the trees and burned the branches and brushwood, presumably preliminary to growing corn. The logs were then charred into useful shapes, and the charred wood removed with scrapers. Doubtless the landing bridge found was produced in this way.

The remainder of the material is more controversial. One controversy among students of the Stone Age is the relative date of ' sacred fire-places '

* Reviewed ANTIQUITY, 1935, IX, 511.

(Helligt Ildsted, heilige Feuerstelle). Dr Winther maintains that the Troldebjerg evidence makes it clear that these belonged to the Stone Age, and were presumably centres of fire-worship. Another difficulty raised is the resemblance of one of the sites (house 19) to the chapel in the King's Palace at Knossos, allowing modifications to suit the different site, while even more interesting is the site which Dr Winther calls the ' Solbjerg ' or sun-hill, which he thinks was a centre of sun-worship. It was certainly not a fortification, as local legend has it ; its use as an Iron Age cemetery is quite demonstrably secondary. It could not, from the evidence found, have been a simple dwelling-place, and its formation and orientation seem to mark it as a temple, connected, Dr Winther thinks, by inspiration with the Eastern Mediterranean. ANGUS MACDONALD.

THE CITIES OF THE EASTERN ROMAN PROVINCES. *By* A. H. M. JONES. *Oxford : The Clarendon Press*, 1937. *pp.* 576 *and* 7 *maps.* 35*s.*

It is strange and disappointing to find a book bearing this title and advertised as ' furnished with detailed maps ' containing not a single plan of a city. The maps, on a scale of 1 : 1,000,000, show merely the regions in question. More astonishing still, nothing is said of the present condition of these cities, and no mention is made of the work done by archaeologists and architects on such things as topography, temples, churches, walls, public and private buildings. There are over a hundred pages of notes in small print : here one would have expected at least references to such matters. The fact is that the book is entirely concerned with the literary and historical aspects of its subject, and a sub-title to that effect ought to have been added. However, even the historian will not get from it what the title leads him to expect, as the first sentence of the introduction shows : ' The object of this work is to trace the diffusion of the Greek City as a political institution through the lands bordering on the eastern Mediterranean which were included within the Roman empire '. It is a reviewer's duty to expose such misleading titles. The author has put an enormous amount of labour into the book, and he will pardon me for dealing with this point here ; for the responsibility is shared by the publishers. Now if, at the publishers' desire, the book is to be reviewed in a periodical such as ANTIQUITY, which is neither purely literary nor historical, this is not the place to criticize it from those standpoints. I content myself therefore with indicating its scope, which extends over Thrace, Asia, Lycia, the Gauls, Pamphilia, Pisidia and Lycaonia, Bithynia and Pontus, Cappadocia, Cilicia, Mesopotamia and Armenia, Syria, Egypt, Cyrenaica, Cyprus.

The cities are described not individually, but as forming part of the political-historical geography of these lands. The period in question extends from the earliest influences of Greek culture down to the time of Justinian. If the

history of the regions just listed is to be treated down to this late period, the omission of Greece, Macedonia, and Crete does not appear justified by the advertised statement that the book deals with ' the diffusion of Greek political institutions in barbaric lands '. For exactly because it examines in much detail conditions in Roman and Byzantine times, the book offers considerably more than a treatment of the diffusion of Greek institutions. Not only from such inconsistency, but also from much duplication of matter, it can be seen that the book has taken many years to work up and that it has been written without continuity—points for which the author apologises. It is a learned work, with all the apparatus of its kind, as the appendices in particular show ; it will be found most stimulating by the historian. But the reader is made uneasy by the words ' certain general conclusions to which I have come in the course of my study, and which I hope to justify in my second book, are implicit in this volume ': they force him to submit to assertions that are not proved. Anyone acquainted with these lands will derive pleasure from the book, while it will give him a new history of the Near Eastern region viewed from specific standpoints. B.

THE COMMON PEOPLE OF POMPEII : a study of the graffiti. *By* HELEN H. TANZER. *Baltimore : Johns Hopkins University Studies in Archaeology, no.* 29. *Edited by* DAVID M. ROBINSON. 1939. *pp.* 113, 49 *illustrations.* 14*s.*

The best idea of the contents of this book can be given by quoting the chapter-headings, namely, the clothing-trades, bakers, food and food-dealers, inns and eating-places, (public) spectacles and other interests of the people. The illustrations are interesting and amusing ; in this connexion may we ventilate a criticism which applies not only to this book but to many others—that some reference should be made to the number of stages they are removed from the originals ? In art much is lost by a single process of copying and if the copy is itself copied a false impression is often conveyed, and inaccuracies slip in. The ideal method of reproduction would be that used by ' art-dealers ' in their catalogues ; but of course one cannot expect such luxuries in books produced for instruction and edification rather than for pecuniary profit. However, this is a relatively small matter ; and for the book as a whole we have nothing but praise. It is the kind of book that humanizes its subject ; and the scholarship is sufficiently guaranteed by the fact that Professor D. M. Robinson is general editor of the series.

Some of the pictures are really delightful, such as ' Exulting in victory ' (fig. 38), and the public-house brawlers (fig. 27). Pompeii was a holiday resort ; and it is amusing to find that, then as now, some of the visitors to holiday-resorts

were disillusioned when they got there and wrote ribald rhymes on the walls (' Eagerly we left our home ; now we would go back to Rome '). Then, too, as now, many of the graffiti deal with love and lovers ; but naturally not all of these could be noticed. Mediterranean peoples have always been realists ; and there is no trace of mysticism in their love-affairs. O.G.S.C.

STYLE TRENDS OF PUEBLO POTTERY in the Rio Grande and Little Colorado Cultural Areas from the Sixteenth to the Nineteenth Century. *By* H. P. MERA. *Memoirs of the Laboratory of Anthropology*, vol. III. *Santa Fe, New Mexico.* 1939. *pp.* 28, 67 *plates, map and bibliography.* $7.50.

Dr Mera has assembled a very useful body of evidence showing the development and relation of styles in Spanish Colonial times, in three out of the five ceramic provinces of the Pueblo Area, and has presented it in a lucid and interesting manner. Excavation is hindered by the fact that many of the most promising sites are still occupied, and dated material is thus hard to obtain ; but good use has been made of abandoned sites whose dates are known, and gaps have been filled in by a judicious use of dendro-chronology. It is to be regretted that no scale is given on the map showing the provinces, and a map showing the sites mentioned could have been added with advantage. On page 18, plate LX, is misprinted for XL.

Some of the changes of style are tentatively ascribed to contacts between different groups of Indians in the concentration camps of the encomienda system, an interesting suggestion, which may have an application to the mining districts of Peru and Mexico when the post-Conquest peasant art of those areas comes to be studied.

The illustrations are on the whole admirable, particularly the profiles and the half-tone cuts, but a word of criticism must be allowed of the drawings of the decorations, which occupy the bottom of each plate. It is to be questioned whether the use of colour is justified, seeing that it is purely conventional and not an accurate representation of the actual colours of the vessels, a fact of which the reader has constantly to remind himself. These drawings are admittedly diagrammatic, but they seem to have undergone an unnecessary amount of conventionalisation at the hand of the draughtsman, and little attention has been paid to proportion, either in form or in the relative areas of the colours. Many mistakes have been made, of which a few may be taken at random ; on plate I, the sloping pairs of lines are shown with a dashed line running longitudinally between them, whereas on the vessel the dashes are transverse like the rungs of a ladder ; on plate XI a line is omitted from the top right-hand corner of each panel in the upper row ; on plate XIII too many lines are shown

within each of the triangles which form the main body of the ornament, and, except in one case, they are not drawn parallel to one side as they should be; and on plate XVI the neck decoration is out of register with that of the periphery. The decoration on plate XLI is upside down. These may appear to be small matters, but when it is remembered that some writers on American archaeology are very prone to base far-reaching conclusions upon comparisons between illustrations of objects from different areas, it will be realized that accuracy is vital.

Apart from these points, this is a most useful publication, and no better recommendation of it could be given than to express the hope that Dr Mera will soon be able to extend the work to include the Hopi Ceramic Province.

G. H. S. BUSHNELL.

THE BRITISH ISLANDS AND THEIR VEGETATION. *By* A. G. TANSLEY. *Cambridge University Press.* 1939. *pp.* XXXVIII, 930, *with* 162 *plates containing* 418 *photographs, and* 179 *text-figures.* 45*s.*

This book is the successor of *Types of British Vegetation*, which appeared under the author's editorship in 1911. The latter was the first and only systematic study of British vegetation. Its appearance was coincident with pioneer efforts to establish early man in his natural setting in which Mr O. G. S. Crawford had played a leading part.[1] It had long been difficult to obtain, and the time was ripe for a new work to replace the old. The size of the newcomer is in itself an indication of the development of ecological studies in the intervening thirty years.

In writing this book Professor Tansley has had in mind a wider demand than would arise from a comparatively limited group of specialists. His aim has been to produce ' a continuous story which can be read and not merely " consulted " by the student . . . who is not an ecological specialist '. To achieve this purpose the sections on the vegetation which form the core of the book are preceded by others in which climate, soil and other formative factors are discussed, so that within one cover is assembled all that can be needed for a general understanding of the vegetation of Britain in the light of present knowledge. The earlier sections lose none of their value from the fact that they are largely compilations. As far as the non-specialist can discern they fulfil their purpose admirably and provide in readily assimilable form information which cannot easily be obtained elsewhere. In some respects too they draw attention to changes which have taken place since 1911, some of them of importance from

[1] The culmination of this first phase might be said to be Dr Williams Freeman's map of Hampshire (*An Introduction to Field Archaeology of Hampshire*, facing p. 446) which broke new ground in the still new field of archaeological distribution-maps.

the archaeological point of view; as, for instance, in the greater stress which is placed nowadays upon climate for its effect upon vegetation. In parts III–IX, in which the vegetation itself is described, the author has throughout remained true to his stated aim. These, the more highly specialized sections, are not only of great value for consultation and reference; they are also eminently readable, and each has where necessary sufficient repetition of general matter to enable it to stand by itself.

The immediate interest of the archaeologist naturally centres upon part III, in which prehistory and history are dealt with. In its archaeological aspects this part is a good piece of reporting in which orthodox views are set forth, though briefly because of the small space available. The earlier (pre-Bronze Age) and later (post-Roman) periods inevitably receive the fullest treatment because in them the evidence is fuller and more securely founded: on pollen analysis in the one (although this naturally is also available later) and on records in the other. The author's pre-occupation is with the history of vegetation in its own right; and while it is true that from Neolithic times onwards this subject cannot be divorced from human activity, we may be disappointed but can hardly grumble because he has not thought fit to make anything more than incidental pronouncements on theories advanced from the archaeological side. To do more would have involved greater detail than his scheme probably allowed.

Professor Tansley is at any rate fully aware of the problem set by the first serious impact of man upon his environment, which took place with the arrival of the first stock-breeders and farmers in Neolithic times. And closely related is the question of the primeval condition of the chalk downs. The ecologists increasingly urge the view that the chalk was formerly much more densely forested than it is now, at any rate in the warm damp climate of Atlantic times. Archaeologists on the other hand have long been accustomed to regard the chalk as naturally free—or comparatively free—from vegetation, thus forming ideal areas of primary settlement for primitive people. A variety of evidence strongly favours the belief that in the Bronze Age the greater part of the chalk was of just this open character. So that if the ecologists are right the question that arises is to what extent a natural process of forest-reduction (brought about by the change-over to the sub-Boreal apparently in the third millennium B.C.) had advanced before Neolithic man arrived; and how far Neolithic man himself initiated and promoted forest-clearing.

Tansley favours a combination of the two: a climatic impulse strengthened by the pastoral and agricultural activities of the Neolithic folk, whom he pictures as settled first of all in open 'islands' on the more exposed ridges. This is a reasonable explanation; but it makes the problem appear more simple than it really is. It may suit conditions on the chalk, although these long barrows by no

means always occur on exposed ridges ; or on the Cotswold oolite, where however long cairns are often found in places which can and do today support a healthy woodland with large trees of ash and beech. But in Wales and apparently also in Scotland the Neolithic people cannot be described as people of the ridges without qualifications. The most conspicuous feature of their distribution is their preference for low-lying sites, many of which are sheltered in narrow valleys still richly wooded.[2] The relationship to sea-plain and valleys is obvious enough, but the evidence as a whole suggests that the tombs are sited in relation partly to water supply, partly to the presence of soils suitable for a primitive agriculture. To believe that these areas were naturally free from trees we should have to postulate the reduction of forest-limits by the Atlantic-sub-Boreal change-over to well below the present tree-line. Alternatively we must recognize that in the west and north Neolithic man did as a matter of habit make clearings in woodland for his tombs if not for his living sites.

Obviously what man could do in the valleys of Wales and Scotland he could do—*mutatis mutandis*—on the chalk and limestone downs. But lack of raw material in the form of the facts upon which to work not only handicaps any attempt to assess the varying parts played by man and nature in modifying these areas but also hinders the reconstruction of the pre-human conditions. Here there are no peat beds to supply scientific control by pollen-analysis, and we have therefore no way of confirming the existence in the past of the sequence which according to the ecologists can be demonstrated on some parts of the chalk at the present day, whereby ash-oakwood is succeeded by pure beechwood. The most hopeful way of accumulating any such facts is likely at present to be by archaeological excavation which will produce dated charcoals as well as parallel material (mollusca and the like) bearing upon climate and soils. But the accumulation will be a slow process, and interpretation will also be attended by difficulties which cannot be discussed here. This material is still too slight and too much scattered for use to have been made of it in the present book. But two pieces of evidence bearing on the history of the beech are already available as a result of it, and deserve mention because of the mystery which still attends the career of this species. Beech charcoals were found in a Neolithic context by Mrs Clifford in Nympsfield long cairn in the Cotswolds (*Proc. Prehistoric Soc.* 1938, 208) ; while at Radyr near Cardiff the identification by H. A. Hyde of beech amongst charcoals from a late prehistoric Iron Age hearth is strong presumptive evidence for the pre-Roman and therefore natural

[2] In Wales the best evidence is provided by the inland group of long cairns in the Black Mountains of Brecknockshire (*Arch. Camb.* 1936, 259–282) ; it is backed up by many individual sites. In Scotland Childe's Solway–Clyde Group of megaliths shows best the same features (*Prehist. Scotland*, Map 1, etc.).

origin of the beech woods in southeast Wales (*Trans. Cardiff Naturalists' Society*, 1935, 46–54).

It is necessary to add one or two criticisms of purely archaeological matters. It is an open question whether the Cotswolds were as sparsely inhabited in the Bronze Age as has often been suggested (p. 166). Beakers and the beaker people were certainly there in some numbers; as elsewhere they seem to have settled down peacefully with the Neolithic folk. And there are plenty of round barrows, although little is known of them, and an abundance of flint implements of Bronze Age types. More important, because of their direct bearing upon the subject of the book, 'Celtic fields' do not receive adequate treatment. It may—or may not—be true that their chief period of cultivation was the Romano-British, as seems to be implied. But they were certainly in use at a much earlier date. The next sheet of the Celtic Earthworks map of Salisbury Plain shortly to be published by the Ordnance Survey emphasizes the fact that these fields are probably of varying periods; the earliest certainly go back at least to Late Bronze Age times. This early dating is however no new discovery: it has already been proved for some groups by the excavation of the associated farms and settlements. There is also some confusion of statement, if not of thought, about field-morphology: the remark (p. 172) that 'Celtic fields' are . . . 'strip-shaped or roughly square' suggests failure to distinguish between the chequer-board pattern normally assumed by 'Celtic fields' and the strip-lynchets developed by the cultivation system of Saxon (and medieval) farmers. Uneasiness on this point is increased by the fact that strip-lynchets are otherwise not mentioned. But the distinction is fundamental.

But in the end, while an archaeologist's review must necessarily deal with matters which come fully within his ken, his essential duty is done with an enthusiastic recommendation of this book to all archaeologists whose work involves any interest in environment. *The British Islands and their Vegetation* is in fact the indispensable accompaniment of all field surveys and environmental studies, and for this the archaeological and historical portions are less important than the rest. Throughout the work bears signs of a master hand; it is a tribute to Professor Tansley's skill and scholarship that the process of steeping oneself in it is as enjoyable as it should be profitable. W. F. GRIMES.

THE ARTS IN PTOLEMAIC EGYPT. *By* IBRAHIM NOSHY. *Oxford University Press*, 1937. *pp.* 154 *and* 18 *plates.* 15*s.*

Late Egyptian art is generally accorded brief and only secondary treatment, for the Egyptologist as a rule is naturally more attracted by the period of the older Pharaohs, besides which he is not always sufficiently familiar with the principles of Greek art necessarily involved in a study of the later era. It is

therefore a matter for congratulation that Mr Noshy, himself an Egyptian, has concluded his Egyptological studies in England with a work on the Ptolemaic period, such as has hitherto been entirely lacking. He has carefully collected all the multifarious material in connexion with the architecture of tombs, dwellings, and temples, as well as plastic evidence (statues, reliefs, miniatures and also coins), and has always kept in view these problems; what is Greek, what Egyptian, and is there a synthesis of the two? It is clear that on the whole the Egyptians remained true to their native forms of art, while the Greeks brought their own methods of building and their own art forms, and introduced them for their purposes into the land which they colonized. No deep-seated fusion of Greek and Egyptian ever took place, for the two cultures were fundamentally too unlike. So for example the attempt made by Petosiris in his tomb at Hermopolis to show Greeks in the Egyptian manner, while at the same time introducing scenes done after the Greek fashion, found no imitators (*c.* 300 B.C.). Here one misses a reference to the Sami Gabra excavation (not yet completed) of the tombs of Tunah, also near Hermopolis, where at a much later time we occasionally find Egyptian motives in Greek sepulchral architecture. It is of importance that the new temple buildings ordered by the Ptolemies and also by the Roman emperors entirely conform to the old Egyptian manner; here the foreign rulers, with great wisdom and foresight, went their farthest to meet their native-born subjects. We can probably assume that in purely Hellenistic cities such as Alexandria or Ptolemais purely Greek temples also existed, but unfortunately no trace of any of them is left.

The book offers a welcome survey of the opposing artistic tendencies in Egypt in the age of the Ptolemies, which existed parallel for centuries without exercising any deep influence upon each other. It was not until the post-Christian era that Egyptian art began quickly to decline, after which the Greeks retained the upper hand until the Arab invaders came. A. SCHARFF.